

STIC Search Report

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TO: Ralph J Gitomer
Location: 11d11 / 11b01
Monday, June 23, 2003
Art Unit: 1651
Phone: 308-0732
Serial Number: 09 / 786883

From: Jan Delaval
Location: Biotech-Chem Library
CM1-1E07
Phone: 308-4498

jan.delaval@uspto.gov

Search Notes

Jan Delaval
Reference Librarian
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SEARCH REQUEST FORM

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Requester's Full Name: JEAN Examiner #: 69630 Date: 6/10/03
 Art Unit: 1651 Phone Number 308-0732 Serial Number: 09/786,883
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Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

JEAN

Claims 9-11

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 jan.delaval@uspto.gov

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 AA Sequence (#) _____
 Structure (#) _____
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Vendors and cost where applicable

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FILE 'HCAPLUS' ENTERED AT 18:11:52 ON 23 JUN 2003

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FILE COVERS 1907 - 23 Jun 2003 VOL 138 ISS 26

FILE LAST UPDATED: 22 Jun 2003 (20030622/ED)

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FILE 'HCAPLUS' ENTERED AT 17:24:01 ON 23 JUN 2003

		E WO99-JP4933/AP, PRN
L1	1	S E3, E4
		E NEMORI R/AU
L2	50	S E3-E5
		E NISHIGAKI J/AU
L3	73	S E3, E7
		E TAMURA Y/AU
L4	208	S E3
L5	212	S E127
		E FUJI/PA, CS
L6	35201	S (FUJI (L) PHOTO?) /PA, CS
L7	1	S (FUJI PHOTO?) /PA, CS
L8	57330	S FUJI/PA, CS
		E THIOL/CT
		E E40+ALL
L9	13975	S E1
		E E2+ALL
L10	5513	S E2
L11	122618	S E2+NT
		E E95+ALL
L12	1125	S E4, E3+NT
		E E7+ALL
L13	17221	S E3-E5, E2+NT
L14	145251	S L9-L13
L15	783	S L14 AND (?MICROPARTICL? OR ?NANOPARTICL? OR MINIPARTICL? OR P
		E MICROPARTICLE/CT
		E E4+ALL
L16	2660	S E3, E2+NT
		E E1+ALL
L17	46468	S E1
		E E401+ALL
L18	48918	S E3
L19	424	S L14 AND L16-L18

Jan Delaval
Reference Librarian
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jan.delaval@uspto.gov

L20 1082 S L15,L19
 L21 286 S L20 AND ?METAL?
 E METAL/CT
 E METALS/CT
 L22 52 S E3 AND L20
 L23 286 S L21,L22
 L24 8 S L23 AND BINDER
 L25 12 S L23 AND (?CROSSLINK? OR ?CROSS LINK?)
 L26 88 S L23 AND (MEMBRANE OR FILM?)
 L27 54 S L23 AND (BIOCHEM?(L)METHOD?)/SC,SX
 L28 24 S L27 AND L24-L26
 L29 18 S L23 AND COLOR?
 E COLOR/CT
 E E3+ALL
 L30 1 S L23 AND E4,E5,E3+NT
 E E10+ALL
 L31 1 S L23 AND E3,E2+NT
 E E2+ALL
 L32 18 S L29-L31
 L33 8221 S L14 (L) (ANT OR ANST)/RL
 L34 21 S L33 AND L23
 L35 14 S L34 AND L24-L32
 L36 126440 S L14 AND (PD<=19990910 OR PRD<=19990910 OR AD<=19990910)
 L37 6756 S L36 AND L33
 L38 32 S L37 AND L20
 L39 480 S L37 AND ?METAL?
 L40 11 S L39 AND L38
 L41 18 S L35,L40
 L42 24 S L34,L38 NOT L41
 SEL DN AN 7 10 12 18 22
 L43 5 S L42 AND E1-E15
 SEL DN AN L41 4 5 7 9 10 12 14
 L44 7 S E16-E36
 L45 12 S L43,L44 AND L1-L44
 L46 13 S L2-L5 AND L14
 L47 347 S L6,L7 AND L14
 L48 2 S L46 AND L20
 L49 2 S L46 AND ?METAL?
 L50 2 S L48,L49
 L51 12 S L45,L50
 L52 11 S L46 NOT L51
 L53 6 S L47 AND L20
 L54 68 S L47 AND ?METAL?
 L55 5 S L53 AND L54
 L56 15 S L51,L55

FILE 'HCAPLUS' ENTERED AT 18:11:52 ON 23 JUN 2003

=> d all hitstr tot 156

L56 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2003 ACS
 AN 2003:56145 HCAPLUS
 DN 138:129073
 TI Method for liquid-phase synthesis of **metal** or **metal**
 -chalcogen **nanoparticle** for phase-change optical recording
 medium
 IN Waki, Kokichi
 PA **Fuji Photo** Film Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C01G030-00

ICS B01F003-12; B01F007-00; B41M005-26; C01B019-04; C01G005-00;
C01G015-00; G11B007-24

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 49

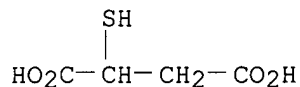
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003020228	A2	20030124	JP 2001-202281	20010703
PRAI	JP 2001-202281		20010703		
AB	The title nanoparticle is manufd. by following steps; reacting .gtoreq.1 metal compd. with a reducing agent or a chalcogen compd. in an alc.-type solvent and/or water dissolved with an adsorption group-contg. low mol. dispersant and/or a polymer dispersant with a high-speed shearing app; and then refining by ultrafiltration. An optical recording medium equipped with a recording layer contg. the above nanoparticle provides high recording d. and sensitivity.				
ST	metal chalcogen nanoparticle liq phase synthesis optical recording medium				
IT	Polysiloxanes, uses RL: NUU (Other use, unclassified); USES (Uses) (Trefil R910, dispersant; liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				
IT	Dispersing agents Nanoparticles Optical disks (liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				
IT	70-49-5, Mercaptosuccinic acid 87-69-4, L-Tartaric acid, uses 9003-39-8, Polyvinylpyrrolidone 33381-42-9, Mercaptopropanesulfonic acid RL: NUU (Other use, unclassified); USES (Uses) (dispersant; liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				
IT	12002-77-6P, Silver indium telluride (AgInTe2) 12002-99-2P, Silver telluride (Ag2Te) 15122-76-6P, Silver antimonide telluride (AgSbTe2) 37215-27-3P, Silver antimonide (AgSb) 483989-47-5P, Antimony gold sulfide telluride (Sb3AuS3Te3) 490022-08-7P, Antimony indium silver telluride (Sb2InAgTe6) 490022-09-8P, Antimony indium silver telluride (Sb10InAgTe4) RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses) (liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				
IT	563-63-3, Silver acetate 12034-41-2, Sodium telluride 12737-02-9, Antimony acetate 25114-58-3, Indium acetate 154924-29-5 RL: RCT (Reactant); RACT (Reactant or reagent) (liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				
IT	16940-66-2, Sodium tetrahydroborate RL: RGT (Reagent); RACT (Reactant or reagent) (reducing agent; liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				
IT	110-80-5 RL: NUU (Other use, unclassified); USES (Uses) (solvent; liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				
IT	70-49-5, Mercaptosuccinic acid RL: NUU (Other use, unclassified); USES (Uses) (dispersant; liq.-phase synthesis of metal or metal -chalcogen nanoparticle for phase-change optical recording medium)				

-chalcogen **nanoparticle** for phase-change optical recording medium)

RN 70-49-5 HCAPLUS

CN Butanedioic acid, mercapto- (9CI) (CA INDEX NAME)



L56 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2003 ACS.

AN 2003:34998 HCAPLUS

DN 138:98267

TI Liquid-phase synthesis of **metal** or **metal**-chalcogen **nanoparticles** and high-density phase-change optical disks therewith

IN Waki, Kokichi

PA **Fuji Photo** Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B22F009-24

ICS B41M005-26; C23C018-08; G11B007-24; H01F001-06

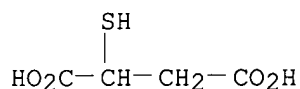
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 57, 78

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003013117	A2	20030115	JP 2001-202279	20010703
PRAI	JP 2001-202279		20010703		
AB	The process comprises momentary reaction of metal compds. with reductants or chalcogen compds. in alcs. and/or water in the presence of dispersants in compact airtight magnetic agitators and ultrafiltration of the resulted nanoparticles . The dispersants are polymers or lower mols. having adsorbing groups.				
ST	antimony telluride nanoparticle synthesis paddle agitator; silver antimonide nanoparticle synthesis optical disk				
IT	Polysiloxanes, uses RL: NUU (Other use, unclassified); USES (Uses) (Trefil R 910, dispersants; liq.-phase synthesis of chalcogenide nanoparticles under paddle agitation for phase-change optical disks)				
IT	Chalcogenide glasses RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (liq.-phase synthesis of chalcogenide nanoparticles under paddle agitation for phase-change optical disks)				
IT	Agitation (mechanical) Dispersing agents Nanoparticles Ultrafiltration (liq.-phase synthesis of metal nanoparticles under paddle agitation for phase-change optical disks)				
IT	Chalcogenides RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (nanoparticules; liq.-phase synthesis of metal nanoparticles under paddle agitation for phase-change optical disks)				

- IT Erasable optical disks
(phase-change; liq.-phase synthesis of **metal nanoparticles** under paddle agitation for phase-change optical disks)
- IT 7440-57-5P, Gold, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(antimonide telluride glasses; liq.-phase synthesis of chalcogenide **nanoparticles** under paddle agitation for phase-change optical disks)
- IT 70-49-5, Mercaptosuccinic acid 9003-39-8, Poly(vinylpyrrolidone) 33381-42-9, Mercaptopropanesulfonic acid
RL: NUU (Other use, unclassified); USES (Uses)
(dispersants; liq.-phase synthesis of chalcogenide **nanoparticles** under paddle agitation for phase-change optical disks)
- IT 15122-76-6P, Antimony silver telluride (SbAgTe₂) 483989-45-3P, Antimony indium silver telluride (Sb₂InAgTe₅) 483989-46-4P 483989-47-5P, Antimony gold sulfide telluride (Sb₃AuS₃Te₃)
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(glass; liq.-phase synthesis of chalcogenide **nanoparticles** under paddle agitation for phase-change optical disks)
- IT 12002-77-6P, Indium silver telluride (InAgTe₂) 12002-99-2P, Silver telluride (Ag₂Te) 37215-27-3P, Silver antimonide (AgSb)
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(glass; liq.-phase synthesis of **metal nanoparticles** under paddle agitation for phase-change optical disks)
- IT 7440-22-4P, Silver, preparation 7440-36-0P, Antimony, preparation 7440-74-6P, Indium, preparation 13494-80-9P, Tellurium, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(telluride glasses; liq.-phase synthesis of chalcogenide **nanoparticles** under paddle agitation for phase-change optical disks)
- IT 70-49-5, Mercaptosuccinic acid
RL: NUU (Other use, unclassified); USES (Uses)
(dispersants; liq.-phase synthesis of chalcogenide **nanoparticles** under paddle agitation for phase-change optical disks)
- RN 70-49-5 HCAPLUS
- CN Butanedioic acid, mercapto- (9CI) (CA INDEX NAME)



L56 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 2002:562076 HCAPLUS
DN 137:259514
TI DNA binding of an ethidium intercalator attached to a monolayer-protected gold cluster
AU Wang, Gangli; Zhang, Jian; Murray, Royce W.
CS Kenan Laboratories of Chemistry, University of North Carolina, Chapel Hill, NC, 27599, USA
SO Analytical Chemistry (2002), 74(17), 4320-4327
CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal

LA English

CC 9-5 (Biochemical Methods)

AB Ethidium intercalation has been investigated as a means of inducing binding of Au **nanoparticles** to DNA. The ethidium sites are attached to the **nanoparticles** as thiolate ligands, using 3,8-diamino-5-mercaptododecyl-6-phenylphenanthridinium (ethidium thiolate). Each **nanoparticle** bears only one or two ethidium thiolate ligands. The rest of the thiolate monolayer ligands on the monolayer-protected Au clusters (MPCs) were either N-(2-mercaptopropionyl)glycine (tiopronin/ethidium MPC) or trimethyl(mercaptoundecyl)ammonium (TMA/ethidium MPC). In soln. mixts. of DNA and MPCs, the energy-transfer quenching of the ethidium ligands by the **metal**-like MPC core is partially released by ethidium binding to DNA, as obsd. by an increase in the intensity of ethidium fluorescence. Binding of the cationic TMA/ethidium MPC to DNA was efficient and rapid. The neg. charged tiopronin/ethidium MPC, in contrast, exhibits slow intercalation kinetics, relative to ethidium cation not attached to an MPC. The slow kinetics were analyzed as two competing binding interactions. The tiopronin/ethidium MPC binding to DNA was imaged by AFM.

ST DNA binding ethidium intercalator monolayer gold cluster

IT Atomic force microscopy
Energy transfer
Fluorescence quenching
Fluorometry
Intercalation
Intercalation kinetics
Molecular association
Monolayers
Nanoparticles
(DNA binding of ethidium intercalator attached to monolayer-protected gold cluster)

IT DNA
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(DNA binding of ethidium intercalator attached to monolayer-protected gold cluster)

IT 1953-02-2, Tiopronin 197587-43-2 462099-70-3, Ethidium thiol
RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); **ANST (Analytical study)**; PROC (Process)
(DNA binding of ethidium intercalator attached to monolayer-protected gold cluster)

IT 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(DNA binding of ethidium intercalator attached to monolayer-protected gold cluster)

RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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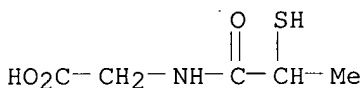
IT 1953-02-2, Tiopronin

RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process)

(DNA binding of ethidium intercalator attached to monolayer-protected gold cluster)

RN 1953-02-2 HCAPLUS

CN Glycine, N-(2-mercapto-1-oxopropyl)- (9CI) (CA INDEX NAME)



L56 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:539578 HCAPLUS

DN 137:106078

TI Surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aqueous media

IN Adams, Edward William; Bruchez, Marcel Pierre, Jr.

PA Quantum Dot Corporation, USA

SO PCT Int. Appl., 46 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM B01J002-00

ICS H01L033-00

CC 9-16 (Biochemical Methods)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 2002055186 A2 20020718 WO 2001-US42699 20011012
 WO 2002055186 A3 20030320
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,
 RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,
 VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2000-240216P P 20001013
 US 2001-841237 A 20010423

AB Water-dispersible **nanoparticles** are prepd. by applying a coating
 of a multiply amphipathic dispersant to the surface of a hydrophobic
nanoparticle comprised of a semiconductive or **metallic**
 material. The multiply amphipathic dispersant has two or more hydrophobic
 regions and two or more hydrophilic regions, and is typically polymeric.
 Preferred polymeric dispersants are comprised of (1) a hydrophobic
 backbone with hydrophilic branches, (2) a hydrophilic backbone with
 hydrophobic branches, or (3) a backbone that may be either hydrophobic or
 hydrophilic, and substituted with both hydrophilic and hydrophobic
 branches. Monodisperse populations of water-dispersible
nanoparticles are also provided, as are conjugates of the
 water-dispersible **nanoparticles** with affinity mols. such as
 peptides, oligonucleotides, and the like.

ST surface semiconductive **metallic nanoparticle**
 dispersibility aq media

IT Vinyl compounds, analysis
 RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or
 chemical process); PYP (Physical process); ANST (Analytical study); PROC
 (Process)
 (polymers; surface modified semiconductive and **metallic**
nanoparticles having enhanced dispersibility in aq. media)

IT Adsorption
 Coating materials
 Molecular surface
 Nanocrystals
Nanoparticles
 Surfactants
 (surface modified semiconductive and **metallic**
nanoparticles having enhanced dispersibility in aq. media)

IT Peptides, analysis
 Sulfonic acids, analysis
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)
 (surface modified semiconductive and **metallic**
nanoparticles having enhanced dispersibility in aq. media)

IT Dendritic polymers
 RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or
 chemical process); PYP (Physical process); ANST (Analytical study); PROC
 (Process)
 (surface modified semiconductive and **metallic**
nanoparticles having enhanced dispersibility in aq. media)

IT 26937-01-9, PAMAM
 RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or
 chemical process); PYP (Physical process); ANST (Analytical study); PROC
 (Process)
 (Starburst, dendritic; surface modified semiconductive and
metallic nanoparticles having enhanced dispersibility
 in aq. media)

IT 25952-53-8
 RL: ARU (Analytical role, unclassified); MOA (Modifier or additive use);
 PEP (Physical, engineering or chemical process); PYP (Physical process);

- ANST (Analytical study); PROC (Process); USES (Uses)
(coupling agent; surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- IT 13598-36-2, Phosphonic acid
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- IT 78-50-2, Trioctylphosphine oxide 79-10-7D, Acrylic acid, esters
79-41-4D, Methacrylic acid, esters 124-22-1, Dodecylamine 998-40-3,
Tributylphosphine **1322-36-7**, Dodecanethiol 4731-53-7, Trioctyl
phosphine 14866-33-2, Tetraoctylammonium bromide 94805-33-1,
Octanethiol
RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or
chemical process); PYP (Physical process); **ANST (Analytical study)**
; PROC (Process)
(surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- IT 25549-84-2DP, reaction products with octylamine and tetramethylammonium
hydroxide
RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or
chemical process); PYP (Physical process); SPN (Synthetic preparation);
ANST (Analytical study); PREP (Preparation); PROC (Process)
(surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- IT 1306-24-7, Cadmium selenide, uses 1314-98-3, Zinc sulfide, uses
RL: DEV (Device component use); USES (Uses)
(surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- IT 25667-42-9
RL: NUU (Other use, unclassified); USES (Uses)
(surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- IT 442849-58-3
RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or
chemical process); PYP (Physical process); ANST (Analytical study); PROC
(Process)
(triblock; surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- IT **1322-36-7**, Dodecanethiol
RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or
chemical process); PYP (Physical process); **ANST (Analytical study)**
; PROC (Process)
(surface modified semiconductive and **metallic nanoparticles** having enhanced dispersibility in aq. media)
- RN 1322-36-7 HCAPLUS
CN Dodecanethiol (8CI, 9CI) (CA INDEX NAME)

(C₁₂H₂₅) - SH

L56 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 2002:449926 HCAPLUS
DN 137:29003
TI **Nanoparticles** having oligonucleotides attached for hybridization
detection of nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James
J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li,
Zhi; Park, So-Jung
PA Nanosphere, Inc., USA
SO PCT Int. Appl., 442 pp.
CODEN: PIXXD2

DT Patent
 LA English
 IC ICM C12Q001-68
 CC 3-1 (Biochemical Genetics)
 FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002046472	A2	20020613	WO 2001-US46418	20011207
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002155442	A1	20021024	US 2001-760500	20010112 <--
	US 2003022169	A1	20030130	US 2001-820279	20010328 <--
	US 2002172953	A1	20021121	US 2001-927777	20010810 <--
	AU 2002030593	A5	20020618	AU 2002-30593	20011207
PRAI	US 2000-254392P	P	20001208		
	US 2000-254418P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2000-255236P	P	20001211		
	US 2001-760500	A	20010112		
	US 2001-820279	A	20010328		
	US 2001-282640P	P	20010409		
	US 2001-927777	A	20010810		
	US 1996-31809P	P	19960729	<--	
	WO 1997-US12783	A2	19970721	<--	
	US 1999-240755	B2	19990129	<--	
	US 1999-344667	A2	19990625	<--	
	US 2000-176409P	P	20000113		
	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-213906P	P	20000626		
	US 2000-603830	A2	20000626		
	US 2000-224631P	P	20000811		
	WO 2001-US46418	W	20011207		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to **nanoparticles** and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a **color** change) is brought about as a result of the hybridization of the oligonucleotides on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique **nanoparticle**-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising **nanoparticles** and methods of nanofabrication utilizing **nanoparticles**. The invention shows that it is important to achieve a balance between oligonucleotide coverage high enough to stabilize the **nanoparticles** to which they are attached, yet low enough so that a high percentage of the strands are accessible for hybridization with oligonucleotides in soln. This is achieved by adjusting salt conditions during oligonucleotide attachment to the **nanoparticles** to gain high oligonucleotide surface coverages, oligonucleotide spacer segments to reduce electrosteric interactions, and coadsorbed diluent strands to reproducibly the av. no. of hybridization events for each particle. Also,

the nature of the tether (spacer) sequence influences the no. of oligonucleotide strands loaded onto gold **nanoparticles**. Gold **nanoparticle**-oligonucleotide conjugates using a cyclic disulfide linker serve as effective probes for detecting specific oligonucleotide sequences, and exhibit much greater stability toward dithiothreitol than corresponding conjugates prep'd. with conventional mercaptohexyl group or an acyclic disulfide unit. A DNA array imaging technique based on scattered light from larger oligonucleotide-functionalized **nanoparticles** provides the opportunity for sensitive, ultrasensitive, multicolor labeling of DNA arrays. Finally, the invention provides a method of sepg. a selected nucleic acid from other nucleic acids.

- ST oligonucleotide probe **nanoparticle** nucleic acid detection
- IT Freezing
 - (-thawing, acceleration of **nanoparticle**-oligonucleotide conjugate hybridization by; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Disulfides
 - RL: ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
 - (cyclic, linking agents; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Light scattering
 - (detection by; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT PCR (polymerase chain reaction)
 - (direct assay of PCR amplicons without isolation of the amplicon; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Gene
 - RL: ANT (Analyte); ANST (Analytical study)
 - (disease-assocd.; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT **Thiols (organic), analysis**
 - RL: ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
 - (linking agents; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Porous materials
 - (microporous, test kit comprising; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT **Colorimetry**
 - DNA microarray technology
 - Electric conductivity
 - Fluorescent dyes
 - Fluorescent indicators
 - Fluorometry
 - Linking agents
 - Nanoparticles**
 - Nucleic acid hybridization
 - Optical scanners
 - Quantum dot devices
 - Semiconductor materials
 - Test kits
 - (**nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT DNA
 - Nucleic acids
 - RNA
 - Viral DNA
 - Viral RNA
 - RL: ANT (Analyte); ANST (Analytical study)
 - (**nanoparticles** having oligonucleotides attached for

- hybridization detection of nucleic acids)
- IT Probes (nucleic acid)
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(**nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Glass, uses
Metals, uses
Noble **metals**
RL: DEV (Device component use); USES (Uses)
(**nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT **Thiols (organic), analysis**
RL: ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
(polythiols, linking agents; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Electrolytes
(redn. of electrostatic repulsion between probes and **nanoparticles** by; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Salts, uses
RL: NUU (Other use, unclassified); USES (Uses)
(redn. of electrostatic repulsion between probes and **nanoparticles** by; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT Antibodies
Antigens
Avidins
Ligands
Receptors
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(specific binding pairs for detection; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT 107-96-0, 3-Mercaptopropionic acid 111-31-9, Hexylthiol
RL: ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
(linking agents; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT 2321-07-5, Fluorescein
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(**nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT 1306-24-7, Cadmium selenide, uses 1314-98-3, Zinc sulfide, uses
RL: DEV (Device component use); USES (Uses)
(quantum dot core/shell; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT 127-09-3, Sodium acetate 631-61-8, Ammonium acetate 7447-40-7, Potassium chloride, uses 7647-14-5, Sodium chloride, uses 7786-30-3, Magnesium chloride, uses 12125-02-9, Ammonium chloride, uses
RL: NUU (Other use, unclassified); USES (Uses)
(redn. of electrostatic repulsion between probes and **nanoparticles** by; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT 58-85-5, Biotin 9013-20-1, Streptavidin
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(specific binding pairs for detection; **nanoparticles** having oligonucleotides attached for hybridization detection of nucleic acids)
- IT 60-24-2, Mercaptoethanol 3483-12-3, Dithiothreitol

RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
 (stability of oligonucleotide-**nanoparticle** to;
nanoparticles having oligonucleotides attached for
 hybridization detection of nucleic acids)

IT 269061-10-1P 269061-12-3P 364590-01-2P

RL: ARU (Analytical role, unclassified); RCT (Reactant); SPN (Synthetic preparation); **ANST (Analytical study)**; PREP (Preparation); RACT (Reactant or reagent)

(steroid disulfide linker synthesis; **nanoparticles** having
 oligonucleotides attached for hybridization detection of nucleic acids)

IT 481-29-8, Epiandrosterone 74185-01-6, 1,2-Dithiane-4,5-diol

RL: RCT (Reactant); RACT (Reactant or reagent)

(steroid disulfide linker synthesis; **nanoparticles** having
 oligonucleotides attached for hybridization detection of nucleic acids)

IT 437671-82-4 437671-83-5 437671-84-6 437671-85-7 437671-86-8

437671-87-9 437671-88-0 437671-89-1 437671-90-4 437671-91-5

437671-92-6 437671-93-7 437671-94-8 437671-95-9 437671-96-0

437671-97-1 437671-98-2 437671-99-3 437672-00-9 437672-01-0

437672-02-1 437672-03-2 437672-04-3 437672-05-4 437672-06-5

437672-07-6 437672-08-7 437672-09-8 437672-10-1 437672-11-2

437672-12-3 437672-13-4 437672-14-5 437672-15-6 437672-16-7

437672-17-8 437672-18-9 437672-19-0 437672-20-3 437672-21-4

437672-22-5 437672-23-6 437672-24-7 437672-25-8 437672-26-9

437672-27-0 437672-28-1 437672-29-2 437672-30-5 437672-31-6

437672-32-7 437672-33-8 437672-34-9 437672-35-0 437672-36-1

437672-37-2 437672-38-3 437672-39-4 437672-40-7 437672-41-8

437672-42-9 437672-43-0

RL: PRP (Properties)

(unclaimed nucleotide sequence; **nanoparticles** having
 oligonucleotides attached for hybridization detection of nucleic acids)

IT 107-96-0, 3-Mercaptopropionic acid 111-31-9, Hexylthiol

RL: ARU (Analytical role, unclassified); RCT (Reactant); **ANST (Analytical study)**; RACT (Reactant or reagent)

(linking agents; **nanoparticles** having oligonucleotides
 attached for hybridization detection of nucleic acids)

RN 107-96-0 HCAPLUS

CN Propanoic acid, 3-mercapto- (9CI) (CA INDEX NAME)

HS-CH₂-CH₂-CO₂H

RN 111-31-9 HCAPLUS

CN 1-Hexanethiol (8CI, 9CI) (CA INDEX NAME)

HS-(CH₂)₅-Me

IT 60-24-2, Mercaptoethanol 3483-12-3, Dithiothreitol

RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
 (stability of oligonucleotide-**nanoparticle** to;
nanoparticles having oligonucleotides attached for
 hybridization detection of nucleic acids)

RN 60-24-2 HCAPLUS

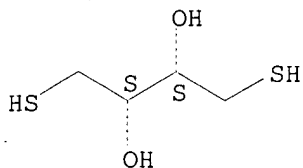
CN Ethanol, 2-mercapto- (8CI, 9CI) (CA INDEX NAME)

HO-CH₂-CH₂-SH

RN 3483-12-3 HCAPLUS

CN 2,3-Butanediol, 1,4-dimercapto-, (2R,3R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L56 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2003 ACS
 AN 2002:202203 HCAPLUS
 DN 136:224286
 TI Write-once read-many type optical recording disk and optical recording method using 300-500 nm laser irradiation
 IN Waki, Kokichi; Usami, Yoshihisa; Ishimaru, Shingo
 PA Fuji Photo Film Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B41M005-26
 ICS G11B007-24
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002079756	A2	20020319	JP 2000-387259	20001220
	US 2001022769	A1	20010920	US 2001-810223	20010319
PRAI	JP 2000-75472	A	20000317		
	JP 2000-183142	A	20000619		
	JP 2000-387259	A	20001220		
AB	The title optical disk contains surface-modified metal microparticles in an optical recording layer, wherein the metal is selected from group 8 elements and group 1B elements, and the microparticles have an av. particle size of 1-50 nm. The surface modification is carried out by a compd. contg. -SH, -CN, or -NH ₂ . The optical disk shows high d. and high sensitivity in 300-500 nm.				
ST	write once read many type optical recording disk WORM				
IT	Fluoropolymers, uses				
	RL: DEV (Device component use); USES (Uses) (amorphous; in heat insulator layer of write-once read-many type optical recording disk)				
IT	Butadiene rubber, uses				
	RL: DEV (Device component use); USES (Uses) (binder in recording layer of write-once read-many type optical recording disk)				
IT	Silicone rubber, uses				
	RL: DEV (Device component use); USES (Uses) (di-Me; binder in recording layer of write-once read-many type optical recording disk)				
IT	Cyanine dyes				
	(pentamethine cyanine dye; dye in recording layer of write-once read-many type optical recording disk)				
IT	Optical recording				
	(write-once read-many type optical recording disk and optical recording method using 300-500 nm laser irradsn.)				
IT	Optical disks				
	(write-once read-many; write-once read-many type optical recording disk and optical recording method using 300-500 nm laser irradsn.)				

IT 9003-17-2
 RL: DEV (Device component use); USES (Uses)
 (butadiene rubber, binder in recording layer of write-once read-many type optical recording disk)

IT 1322-36-7, Dodecane thiol
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for surface modification of **metal microparticles**
 in optical recording layer of write-once read-many type optical disk)

IT 7440-05-3P, Palladium, preparation 7440-06-4P, Platinum, preparation
 7440-22-4P, Silver, preparation 12735-99-8P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (surface modified with dodecanethiol; **microparticles** in
 recording layer of write-once read-many type optical recording disk)

IT 1322-36-7, Dodecane thiol
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for surface modification of **metal microparticles**
 in optical recording layer of write-once read-many type optical disk)

RN 1322-36-7 HCAPLUS
 CN Dodecanethiol (8CI, 9CI) (CA INDEX NAME)

(C₁₂H₂₅) - SH

L56 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2003 ACS
 AN 2001:876103 HCAPLUS
 DN 136:111851
 TI Fibre-optic SERS sensors
 AU Viets, Carmen; Hill, Wieland
 CS Institut für Spektrochemie und Angewandte Spektroskopie (ISAS), Dortmund,
 44013, Germany
 SO Internet Journal of Vibrational Spectroscopy [online computer file]
 (2000), 4(2), No pp. given
 CODEN: IJVS A6; ISSN: 1362-671X
 URL: <http://www.ijvs.com/volume4/edition2/section7.htm>

PB Perkin-Elmer
 DT Journal; (online computer file)
 LA English
 CC 80-2 (Organic Analytical Chemistry)
 Section cross-reference(s): 73

AB Surface-enhanced Raman scattering (SERS) provides vibrational spectra of small amts. of substance adsorbed at appropriately roughened **metal** surfaces. By the combination of selective adsorption with mol.-specific spectra, SERS is a promising method in generating chem. sensors with low cross-sensitivities. Fiber-optics can avoid the hazard of freely propagating laser light and they allow the authors to make remote measurements and adjustment-free sample exchange. Fiber-optic SERS sensors with a single fiber guiding both the excitation laser and the Raman scattered light requires the prepn. of properly roughened **metal films** at the tip of the fibers. Several techniques are available to generate SERS-active fiber tips: Slow evapn. of **metals** forming island **films**, the vacuum deposition of **metal films** over **nanoparticles**, and the evapn. of **metals** on roughened fiber tips. All of these prepn. result in sensor tips with similar enhancements of the Raman scattering intensities, but with different characteristics concerning their applicability.

ST fiber optic SERS sensor; SERS fiber sensor conically etching tip silica
 IT Fiber optic sensors
 (SERS; fiber-optic SERS sensors)
 IT SERS (Raman scattering)

(optical fiber sensor; fiber-optic SERS sensors)

IT 1344-28-1, Alumina, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(Ag **film** on alumina **nanoparticles**; fiber-optic SERS sensors)

IT 7631-86-9, Silica, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(fiber; fiber-optic SERS sensors)

IT 7440-22-4, Silver, analysis 7440-47-3, Chromium, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(**film** on sensor tip; fiber-optic SERS sensors)

IT 108-98-5, Thiophenol, analysis
RL: **ANT (Analyte)**; PRP (Properties); **ANST (Analytical study)**
(test analyte; fiber-optic SERS sensors)

RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD

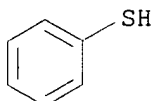
RE

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(2) Bello, J; Anal Chem 1990, V62, P2437 HCAPLUS
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(5) Hill, W; Anal Chem 1995, V67, P3187 HCAPLUS
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(23) Walrafen, G; Appl Spectrosc 1972, V26, P585 HCAPLUS
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(26) Zimba, C; Appl Spectrosc 1991, V45, P162 HCAPLUS

IT 108-98-5, Thiophenol, analysis
RL: **ANT (Analyte)**; PRP (Properties); **ANST (Analytical study)**
(test analyte; fiber-optic SERS sensors)

RN 108-98-5 HCAPLUS

CN Benzenethiol (8CI, 9CI) (CA INDEX NAME)



L56 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:814004 HCAPLUS

DN 135:341136

TI Preparation of luminescent-doped inorganic **nanoparticles** and usage as labels for biomolecule probes

IN Hoheisel, Werner; Petry, Christoph; Bohmann, Kerstin; Haase, Markus; Riwozski, Karsten

PA Bayer A.-G., Germany

SO Ger. Offen., 12 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM G01N033-52

ICS G01N033-58; C12Q001-00; C12Q001-68

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 73

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10106643	A1	20011108	DE 2001-10106643	20010212
	WO 2001086299	A2	20011115	WO 2001-EP4545	20010423
	WO 2001086299	A3	20020523		
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1282824	A2	20030212	EP 2001-931636	20010423
	R:				
	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	DE 2000-10021674	A1	20000505		
	DE 2001-10106643	A	20010212		
	WO 2001-EP4545	W	20010423		

AB The invention concerns luminescent-doped inorg. **nanoparticles** that are used as labels for affinity mols. e.g. nucleic acids, antibodies, proteins, etc.; affinity mols. are directly attached to the **nanoparticles** or via linker groups, e.g. thiols, amines, imidazoles, mol. self-assemblies, etc. Thus europium-doped phosphoric acid, lanthanum(3+) salt (1:1) was prepd. by a previously described wet chem. method; the obtained milky dispersion was centrifuged, dialyzed and dried to obtain the desired particle size. The LaPO₄:Eu **nanoparticles** were coated with silica using a basic sodium water glass soln.; sepd. by ethanol pptn., centrifugation, ultrasound dispersion, decanting and drying. The silica coated **nanoparticles** were amine-activated with 3-aminopropyltriethoxysilane and treated with sulfosuccinimidyl 4-(N-maleimidomethyl)cyclohexane-1-carboxylate (sulfo-SMCC) **crosslinker**. Antibodies to .alpha.-actin were thiol-activated in a 2-iminethiolane soln. and incubated with the treated luminescent-doped inorg. **nanoparticles**; the obtained luminescent probes were used to visualize actin filaments in rabbit muscles by confocal laser scanning microscopy.

ST luminescent doped inorg **nanoparticle** biomol probe fluorescence microscopy

IT Ketones, uses

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (1,2-diketones; prepn. of luminescent-doped inorg.

nanoparticles and usage as labels for biomol. probes)

IT Luminescence

(UV; prepn. of luminescent-doped inorg. **nanoparticles** and

- usage as labels for biomol. probes)
- IT Surfactants
(anionic; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Heterocyclic compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(azolides; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Surfactants
(cationic; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Rare earth **metals**, uses
RL: ARG (Analytical reagent use); MOA (Modifier or additive use); ANST
(Analytical study); USES (Uses)
(dopant; prepn. of luminescent-doped inorg. **nanoparticles** and
usage as labels for biomol. probes)
- IT Phosphates, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Ce,Tb, of a lanthanide or their mixt.; prepn. of
luminescent-doped inorg. **nanoparticles** and usage as labels
for biomol. probes)
- IT Imidic acids
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(esters; prepn. of luminescent-doped inorg. **nanoparticles** and
usage as labels for biomol. probes)
- IT Group IIIA element compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(gallates; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Radioluminescence
(gamma-ray; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Group IVA element compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(germanates; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Phosphates, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(halide; prepn. of luminescent-doped inorg. **nanoparticles** and
usage as labels for biomol. probes)
- IT Immunoassay
(luminescence; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Group VB element compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(niobates; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Heterocyclic compounds
RL: RCT (Reactant); RACT (Reactant or reagent)
(nitrogen, five-membered, imidazoles; prepn. of luminescent-doped
inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Sulfides, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oxy; prepn. of luminescent-doped inorg. **nanoparticles** and
usage as labels for biomol. probes)
- IT Halides
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(phosphates; prepn. of luminescent-doped inorg. **nanoparticles**
and usage as labels for biomol. probes)
- IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyamines, nonpolymeric; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)

- IT Carboxylic acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(polycarboxylic; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Animal tissue
Biochemical molecules
Blood analysis
Blood plasma
Blood serum
Cathodoluminescence
Cerebrospinal fluid
Dopants
Fluorescence microscopy
Fluorescent substances
Fluorometry
Immobilization, biochemical
Light sources
Luminescence spectroscopy
Luminescent substances
Nanoparticles
Nucleic acid hybridization
Particle size
Plant tissue
Plasmids
Self-assembly
Sputum
Sulfhydryl group
Urine analysis
X-ray luminescence
(prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Alkali **metal** halides, uses
Anhydrides
Arsenates
Aryl halides
Borates
Haptens
Isothiocyanates
Molybdates
Oxides (inorganic), uses
Peptides, uses
Phosphates, uses
Polysaccharides, uses
Selenides
Silicates, uses
Sulfates, uses
Sulfides, uses
Sulfonyl halides
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Antibodies
Nucleic acids
Probes (nucleic acid)
Proteins, general, uses
Thiols (organic), uses
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Amines, reactions
Polysulfones, reactions
Thioethers

- RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Diazonium compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(salts; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Selenides
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(sulfo; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Group VB element compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(tantalates; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Antibodies
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(to .alpha.-actin; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Group VIB element compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(tungstates; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Carbonyl compounds (organic), uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(unsatd.; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Group VB element compounds
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(vanadates; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Surfactants
(zwitterionic; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT Actins
RL: ANT (Analyte); ANST (Analytical study)
(.alpha.-; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 1314-98-3, Zinc sulfide (ZnS), uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Ag, Al, Cu, Mn, Tb, TbF₃, Eu, EuF₃, lanthanide doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 82992-94-7, Calcium strontium sulfide ((Ca,Sr)S)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Bi-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 145564-56-3, Calcium magnesium silicate ((Ca,Mg)(SiO₃))
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Ce or Ti doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 150927-51-8, Aluminum cerium magnesium terbium oxide (Al₁₁Ce_{0.65}MgTb_{0.35}O₁₉) 186956-28-5, Aluminum magnesium oxide (Al₁₁MgO₁₉)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Ce, Tb doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 35361-71-8, Aluminum lithium strontium fluoride (AlLiSrF₆) 35362-46-0 371759-79-4, Aluminum calcium oxide silicate (Al₂Ca₂₀(SiO₃)₂)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Ce-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 12442-27-2, Cadmium zinc sulfide ((Cd,Zn)S)

- RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cu, Al, Ag, Ni doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 12024-21-4, Gallium oxide (Ga_2O_3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Dy-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 21669-04-5, Barium bromide fluoride (BaBrF) 122656-71-7, Barium bromide chloride fluoride ($\text{BaBr}_0.5\text{Cl}_{0.5}\text{F}$)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Eu doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13718-55-3, Barium chloride fluoride (BaClF)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Eu or Sm doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 1344-28-1, Alumina, uses 10377-51-2, Lithium iodide (LiI) 12254-04-5, Aluminum barium magnesium oxide ($\text{Al}_{10}\text{BaMgO}_{17}$) 12505-97-4, Boron strontium fluoride oxide ($\text{B}_{12}\text{Sr}_3\text{F}_{20}\text{O}_2$) 37276-56-5, Calcium strontium chloride phosphate ($\text{CaSr}_9\text{Cl}_{12}(\text{PO}_4)_6$) 55134-50-4, Aluminum barium magnesium oxide ($\text{Al}_{16}\text{BaMg}_{20}\text{O}_{27}$) 71012-47-0, Aluminum barium magnesium oxide ($\text{Al}_{14}\text{BaMg}_{23}\text{O}_{23}$) 115968-61-1, Vanadium yttrium oxide phosphate ($\text{VO-1Y}_{0.04}(\text{PO}_4)_0-1$) 119537-26-7, Calcium magnesium sulfide ($(\text{Ca}, \text{Mg})\text{S}$) 350480-93-2, Magnesium strontium metaphosphate oxide ($(\text{Mg}, \text{Sr})_2(\text{PO}_3)_2\text{O}$) 371759-66-9, Aluminum barium magnesium oxide ($\text{Al}_2\text{BaMgO}_3$) 371759-80-7
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Eu-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13597-65-4, Zinc silicate (Zn_2SiO_4)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Mn or As-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7789-75-5, Calcium fluoride (CaF_2), uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Mn or Dy doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7778-18-9, Calcium sulfate (CaSO_4)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Mn or lanthanide doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 10101-39-0
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Mn, Pb, lanthanide doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7779-90-0, Zinc phosphate ($\text{Zn}_3(\text{PO}_4)_2$) 12007-60-2, Lithium borate ($\text{Li}_2\text{B}_4\text{O}_7$) 12159-91-0, Germanium magnesium fluoride oxide ($\text{Ge}_2\text{Mg}_8\text{F}_{20}\text{O}_{11}$) 12255-72-0, Magnesium arsenate oxide ($\text{Mg}_6(\text{AsO}_4)_2\text{O}_3$) 13776-74-4, Magnesium metasilicate (MgSiO_3) 28042-61-7, Magnesium potassium fluoride (MgKF_3) 126344-47-6, Magnesium zinc fluoride ($(\text{Mg}, \text{Zn})\text{F}_2$) 371759-74-9, Beryllium zinc oxide sulfide ($\text{BeZn}_4\text{O}_4\text{S}$) 371759-78-3, Cadmium borate oxide ($\text{Cd}(\text{BO}_3)_2$)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Mn-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 1306-23-6, Cadmium sulfide, uses
RL: ARG (Analytical reagent use); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)
(Mn-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 12143-49-6, Tantalum yttrium oxide (TaYO_4)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Nb-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)

- IT 7790-75-2, Calcium tungstate (CaWO_4)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Pb or Sm doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13573-11-0, Magnesium tungstate (MgWO_4)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Pb or Sm-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13968-67-7, Barium silicate (BaSi_2O_5) 200212-20-0, Barium magnesium zinc oxide silicate ($(\text{Ba}, \text{Mg}, \text{Zn})_{30}(\text{SiO}_3)_2$)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Pb-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 33846-79-6, Barium yttrium fluoride (BaY_2F_8)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Pr, Tm, Er, Ce doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 75535-31-8, Calcium chloride fluoride phosphate ($\text{Ca}_5(\text{Cl}, \text{F})(\text{PO}_4)_3$)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Sb, Mn doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 106804-21-1, Magnesium strontium phosphate ($(\text{Mg}, \text{Sr})_3(\text{PO}_4)_2$)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Sn-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 12031-43-5, Lanthanum oxide sulfide ($\text{La}_2\text{O}_2\text{S}$) 13875-40-6, Lanthanum bromide oxide (LaBrO)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Tb doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13466-21-2, Barium pyrophosphate ($\text{Ba}_2\text{P}_2\text{O}_7$)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Ti-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7789-17-5, Cesium iodide (CsI)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Tl-doped or sodium-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7681-82-5, Sodium iodide (NaI), uses
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Tl-doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 1314-13-2, Zinc oxide (ZnO), uses
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (Zn, Si, Ga doped; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7429-90-5, Aluminum, uses 7429-91-6, Dysprosium, uses 7439-92-1, Lead, uses 7439-96-5, Manganese, uses 7440-00-8, Neodymium, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-10-0, Praseodymium, uses 7440-19-9, Samarium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-28-0, Thallium, uses 7440-30-4, Thulium, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses 7440-45-1, Cerium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-52-0, Erbium, uses 7440-53-1, Europium, uses 7440-55-3, Gallium, uses 7440-64-4, Ytterbium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses
 RL: ARG (Analytical reagent use); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)
 (dopant; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 76125-60-5, Aluminum strontium oxide ($\text{Al}_{14}\text{Sr}_4\text{O}_{25}$)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

- (doped Eu; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 75529-26-9, Gadolinium magnesium borate (GdMgB5O10)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Ce, Tb; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7631-86-9, Silicon dioxide, uses
 RL: ARG (Analytical reagent use); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)
 (doped with Dy, Al; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 113671-38-8, Silicon oxide (SiO₂)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Er, Al; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 31387-71-0, Barium ytterbium fluoride (BaYb₂F₈)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Er; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 12027-88-2, Yttrium silicate (Y₂SiO₅) 12340-04-4, Yttrium oxide sulfide (Y₂O₂S)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Eu or other lanthanide; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 12032-36-9, Magnesium sulfide (MgS)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Eu, Ce, Sm or combination; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13778-59-1, Lanthanum phosphate (LaPO₄)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Eu, Ce, Tb, Dy, Nd; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13566-12-6, Vanadium yttrium oxide (VYO₄)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Eu, Sm, Dy, In; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 1314-36-9, Yttrium oxide (Y₂O₃), uses
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Eu, Tb or other lanthanide; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13568-56-4, Lutetium vanadium oxide (LuVO₄) 13628-52-9, Gadolinium vanadium oxide (GdVO₄) 124676-67-1, Gadolinium yttrium borate ((Gd,Y)(BO₃)) 230313-54-9, Gallium yttrium borate ((Ga,Y)(BO₃))
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Eu; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7789-24-4, Lithium fluoride (LiF), uses
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Mg, Ti, Na or their combination; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 7783-40-6, Magnesium fluoride (MgF₂)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Mn or lanthanide; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 13709-38-1, Lanthanum fluoride (LaF₃)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Nd, Ce, Yb, Er, Tm; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)
- IT 12031-63-9, Lithium niobate (LiNbO₃)
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (doped with Nd, Yb, Er; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)

- IT 371759-81-8, Aluminum yttrium borate oxide ($\text{Al}_3\text{Y}(\text{BO}_3)_3\text{O}_3$)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Nd, Yb; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 69142-81-0, Gadolinium strontium silicate ($\text{Gd}_2\text{Sr}_3\text{Si}_6\text{O}_{18}$)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Pb, Mn; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 25617-97-4, Gallium nitride (GaN)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Pr, Eu, Er, Tm; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 12003-86-0, Aluminum yttrium oxide (AlYO_3) 26916-94-9, Lithium lutetium fluoride (LiLuF_4)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Pr, Tm, Er, Ce; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 1314-96-1, Strontium sulfide (SrS)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Sm, Ce, Eu, Ag, Cu; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 13812-81-2, Strontium pyrophosphate ($\text{Sr}_2\text{P}_2\text{O}_7$)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Sn or Eu; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 371759-82-9, Aluminum gallium yttrium oxide ($\text{Al}_3\text{Ga}_2\text{Y}_2\text{O}_{12}$)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Tb; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 13759-29-0, Yttrium chloride oxide (YClO) 14118-26-4, Lanthanum sodium fluoride (LaNaF_4) 14118-34-4, Sodium yttrium fluoride (NaYF_4)
15640-94-5, Gadolinium sodium fluoride (GdNaF_4) 26874-36-2, Barium yttrium fluoride (BaYF_5)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Yb, Er; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 13709-49-4, Yttrium fluoride (YF_3)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Yb, Er, lanthanide; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 12592-70-0, Gallium strontium sulfide (Ga_2SrS_4)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with lanthanide, Pb; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 12005-21-9, Aluminum yttrium oxide ($\text{Al}_5\text{Y}_3\text{O}_{12}$) 23108-36-3, Lithium yttrium fluoride (LiYF_4)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with lanthanide; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 1305-78-8, Calcium oxide, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with lanthanides; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 12339-07-0, Gadolinium oxide sulfide ($\text{Gd}_2\text{O}_2\text{S}$)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(doped with Tb; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 20548-54-3, Calcium sulfide (CaS)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(lanthanide or Bi doped; prepn. of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)
- IT 58-85-5, Biotin 503-68-4D, Diazoacetic acid, deriv. 541-59-3D,
Maleimide, deriv. 661-20-1D, Isocyanate, deriv. 7439-97-6D, Mercury,

org. deriv., uses 11098-82-1, Aluminate 12233-56-6, Bismuth germanate (Bi₄Ge₃O₁₂) 20830-75-5, Digoxin 144419-68-1, Aluminum barium cerium magnesium oxide (Al₁₁(Ba,Mg)CeO₁₉)

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)

IT 113-00-8, Guanidine 120-72-9D, Indole, derivs. 1344-09-8, Water glass 6539-14-6, 2-Iminothiolane 64987-85-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)

IT 13708-63-9, Terbium fluoride (TbF₃) 13765-25-8, Europium fluoride (EuF₃)

RL: ARG (Analytical reagent use); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)

(with ZnS; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)

IT 7440-27-9, Terbium, uses

RL: ARG (Analytical reagent use); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)

(with mixed oxides; prepn. of luminescent-doped inorg. **nanoparticles** and usage as labels for biomol. probes)

L56 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN 2000:686508 HCAPLUS

DN 133:263549

TI Method for measuring thiol group-containing chemical compound using **metal** colloid

IN Nemori, Ryoichi

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G01N033-68

ICS G01N031-00

CC 9-16 (Biochemical Methods)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000266753	A2	20000929	JP 1999-76011	19990319 <--
PRAI	JP 1999-76011		19990319 <--		

AB A convenient method is provided for accurately measuring a thiol group-contg. chem. compd. (e.g., alkylthiol, arylthiol, amino acid, protein) contained in a sample (e.g., tissue piece). The method comprises a process for contacting a sample (e.g., gas, liq., solid) contg. a thiol group-contg. chem. compd. with a dispersion liq. (e.g., colloid) contg. **metal** particles (e.g., silver, gold, copper, platinum), and a process for detecting the **color** change in the dispersion liq. and/or the state change in the agglutination of **metal** particles generated by the interaction between the thiol group-contg. chem. compd. and the **metal** particles. The method was effectively applied to detecting a thiol group-contg. substance such as ethylmercaptan, phenylmercaptan, cysteine, glutathione, **metallothionein** and breast cancer tissue.

ST thiol sulfhydryl group **metal** particle colloid

IT **Thiols (organic), analysis**

Thiols (organic), analysis

RL: ANT (Analyte); ANST (Analytical study)

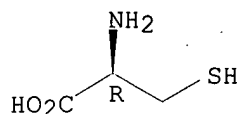
(aryl; method for measuring thiol group-contg. chem. compd. using **metal** colloid)

IT **Particles**

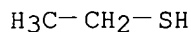
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**metal**; method for measuring thiol group-contg. chem. compd.)

- using **metal** colloid)
- IT Agglutination
Animal tissue
Colloids
Dispersion (of materials)
Gases
Liquids
Solids
- Sulfhydryl group**
(method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT **Metallothioneins**
Thiols (organic), analysis
Thiols (organic), analysis
RL: ANT (Analyte); ANST (Analytical study)
(method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT Gelatins, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT Mammary gland
(neoplasm; method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT Amino acids, analysis
Proteins, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(thiol-group contg.; method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT Phenols, analysis
Phenols, analysis
RL: ANT (Analyte); ANST (Analytical study)
(thiolphenols; method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT 52-90-4, Cysteine, analysis 70-18-8, Glutathione, analysis
75-08-1, Ethylmercaptan 108-98-5, Phenylmercaptan, analysis
RL: ANT (Analyte); ANST (Analytical study)
(method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7761-88-8, Silver nitrate, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT 9004-53-9, Dextrin
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- IT 52-90-4, Cysteine, analysis 75-08-1, Ethylmercaptan
108-98-5, Phenylmercaptan, analysis
RL: ANT (Analyte); ANST (Analytical study)
(method for measuring thiol group-contg. chem. compd. using **metal** colloid)
- RN 52-90-4 HCAPLUS
CN L-Cysteine (9CI) (CA INDEX NAME)

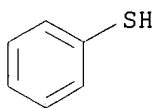
Absolute stereochemistry.



RN 75-08-1 HCAPLUS
CN Ethanethiol (8CI, 9CI) (CA INDEX NAME)



RN 108-98-5 HCAPLUS
CN Benzenethiol (8CI, 9CI) (CA INDEX NAME)



L56 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 2000:191332 HCAPLUS
DN 132:245618
TI Method for determination of organic compounds containing thiol-group
IN Nemori, Ryoichi; Nishigaki, Junji; Tamura, Yutaka
PA Fuji Photo Film Co., Ltd., Japan
SO PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM G01N031-00
ICS G01N021-75; G01N033-68; G01N033-52
CC 80-6 (Organic Analytical Chemistry)
Section cross-reference(s): 9
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000016094	A1	20000323	WO 1999-JP4933	19990910 <--
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9956494	A1	20000403	AU 1999-56494	19990910 <--
EP 1120648	A1	20010801	EP 1999-943265	19990910 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRAI JP 1998-256839 A 19980910 <--
WO 1999-JP4933 W 19990910 <--

AB The title method is suited for detection of proteins or org. compds. which contain alkylmercaptan or thiol-group. The method is based on the observation of the **color** change of a thin **film** with contacts with a sample. The thin **film** is made by mixing

micro particles of metal or metallic
compds. with a hydrophilic **binder**.

ST org compd thiol alkylmercaptan detn thin **film color**
reaction

IT Biology
(cell; method for detn. of org. compds. contg. thiol-group)

IT Biological materials
Body fluid
Color reaction
Films
Neoplasm
(method for detn. of org. compds. contg. thiol-group)

IT Organic compounds, analysis
Thiols (organic), analysis
RL: **ANT (Analyte); ANST (Analytical study)**
(method for detn. of org. compds. contg. thiol-group)

IT Gelatins, uses
RL: DEV (Device component use); USES (Uses)
(method for detn. of org. compds. contg. thiol-group)

IT **Sulphydryl group**
(org. compds. contg.; method for detn. of org. compds. contg.
thiol-group)

IT 7440-22-4, Silver, uses 7440-57-5, Gold, uses 7783-90-6, Silver
chloride, uses 7783-96-2, Silver iodide. 7785-23-1, Silver bromide
RL: DEV (Device component use); USES (Uses)
(colloid; method for detn. of org. compds. contg. thiol-group)

IT 7440-06-4, Platinum, uses 7440-50-8, Copper, uses 9002-89-5, Polyvinyl
alcohol 9004-53-9, Dextrin
RL: DEV (Device component use); USES (Uses)
(method for detn. of org. compds. contg. thiol-group)

IT 66710-66-5, 1,2-Bis(vinylsulfonylacetamido)ethane
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or
reagent); USES (Uses)
(method for detn. of org. compds. contg. thiol-group)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Fuji Photo Film Co Ltd; JP 62228947 A 1987 HCAPLUS
- (2) Kdk Corporation; JP 1084991 A 1998
- (3) Miles Inc; CA 1339797 A HCAPLUS
- (4) Miles Inc; GB 2200989 A HCAPLUS
- (5) Miles Inc; FR 261049 A
- (6) Miles Inc; DE 3703081 A HCAPLUS
- (7) Miles Inc; JP 63247656 A 1988 HCAPLUS
- (8) Terumo Cororation; JP 05130897 A 1993 HCAPLUS
- (9) Terumo Cororation; JP 616619 A 1994

L56 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN 2000:15474 HCAPLUS

DN 132:58561

TI Colloidal particles used in sensing arrays

IN Lewis, Nathan S.; Doleman, Brett J.; Briglin, Shawn; Severin, Erik J.

PA California Institute of Technology, USA

SO PCT Int. Appl., 48 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N

CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 38

FAN.CNT 7

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000000808	A2	20000106	WO 1999-US12904	19990608 <--

WO 2000000808 A3 20000323
 W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,
 DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,
 JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,
 MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
 TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ,
 MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,
 CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1084390 A2 20010321 EP 1999-931777 19990608 <--
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO

AU 9948210 A1 20000117 AU 1999-48210 19990609 <--

PRAI US 1998-88680P P 19980609 <--

US 1999-118833P P 19990205 <--

WO 1999-US12904 W 19990608 <--

AB A device for detecting a chem. analyte, said device comprising: a sensor array connected to a measuring app. having at least one sensor comprising regions of nonconductive material and conductive material compositionally different than said nonconductive material, wherein said conductive material comprises a **nanoparticle**; and a response path through said regions of nonconductive material and said conductive material.

ST colloidal particle sensing array

IT Biochemical molecules

Colloids

Nanoparticles

Surfactants

(analyte detection by sensor array contg. **nanoparticle**

conductive material and nonconductive material)

IT Carbon black, analysis

Dendritic polymers

Ligands

Oligonucleotides

Peptides, analysis

Polycarbonates, analysis

Polymers, analysis

Polysaccharides, analysis

Polysulfones, analysis

Proteins, general, analysis

Thiols (organic), analysis

RL: ARU (Analytical role, unclassified); DEV (Device component use);

ANST (Analytical study); USES (Uses)

(analyte detection by sensor array contg. **nanoparticle**

conductive material and nonconductive material)

IT 64-17-5, Ethanol, analysis 67-56-1, Methanol, analysis 67-63-0,
 2-Propanol, analysis 67-64-1, Acetone, analysis 67-66-3, Chloroform,
 analysis 71-43-2, Benzene, analysis 95-47-6, o-Xylene, analysis
 108-38-3, m-Xylene, analysis 108-88-3, analysis 109-99-9, analysis
 110-54-3, Hexane, analysis 141-78-6, Acetic acid ethyl ester, analysis
 RL: ANT (Analyte); ANST (Analytical study)

(analyte detection by sensor array contg. **nanoparticle**

conductive material and nonconductive material)

IT **112-55-0D**, 1-Dodecanethiol, colloidal gold **nanoparticles**
 covalently attached to 7440-02-0, Nickel, analysis 7440-05-3,
 Palladium, analysis 7440-06-4, Platinum, analysis 7440-22-4, Silver,
 analysis 7440-50-8, Copper, analysis 7440-57-5, Gold, analysis
 9003-20-7, Poly(vinyl acetate) 9003-22-9, Vinyl chloride-vinyl acetate
 copolymer 9003-39-8, Poly(vinyl pyrrolidone) 9003-53-6, Polystyrene
 9003-54-7, Styrene-acrylonitrile copolymer 9011-13-6, Styrene-maleic
 anhydride copolymer 9011-14-7, PMMA 11109-26-5 24937-78-8,
 Ethylene-vinyl acetate copolymer 24979-70-2, Poly(4-vinyl phenol)
 24980-41-4, Polycaprolactone 25014-31-7, Poly(.alpha.-methylstyrene)

25037-45-0, Poly(bisphenol A carbonate) 25119-62-4, Styrene-allyl alcohol copolymer 25248-42-4, Polycaprolactone 26913-06-4, Polyethylenimine 30604-81-0, Polypyrrole 79869-58-2D, Propanethiol, colloidal gold **nanoparticles** covalently attached to

RL: ARU (Analytical role, unclassified); DEV (Device component use);

ANST (Analytical study); USES (Uses)

(analyte detection by sensor array contg. **nanoparticle** conductive material and nonconductive material)

IT 14866-33-2, Tetraoctylammonium bromide 16903-35-8, Gold hydrogen chloride (AuHCl₄) 16940-66-2, Sodium borohydride

RL: RCT (Reactant); RACT (Reactant or reagent)

(analyte detection by sensor array contg. **nanoparticle** conductive material and nonconductive material)

IT **112-55-0D**, 1-Dodecanethiol, colloidal gold **nanoparticles** covalently attached to

RL: ARU (Analytical role, unclassified); DEV (Device component use);

ANST (Analytical study); USES (Uses)

(analyte detection by sensor array contg. **nanoparticle** conductive material and nonconductive material)

RN 112-55-0 HCAPLUS

CN 1-Dodecanethiol (7CI, 8CI, 9CI) (CA INDEX NAME)

HS- (CH₂)₁₁-Me

L56 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN **1998:414825** HCAPLUS

DN **129:92581**

TI Use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions

IN Schwind, Peter; Bashforth, David; Hobbs, Roderick N.; Margetts, Graham; Marshall, Michael J.; Roberts, Mark J. J.

PA Stiftung fur Diagnostische Forschung, Switz.

SO Eur. Pat. Appl., 24 pp.

CODEN: EPXXDW

DT Patent

LA German

IC ICM G01N033-543

CC 9-10 (Biochemical Methods)

Section cross-reference(s): 14, 15

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 849595	A1	19980624	EP 1996-120421	19961218 <--
	EP 849595	B1	20010509		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
	AT 201100	E	20010515	AT 1996-120421	19961218 <--
	ES 2156610	T3	20010701	ES 1996-120421	19961218 <--
	AU 9746907	A1	19980625	AU 1997-46907	19971205 <--
	AU 724475	B2	20000921		
	JP 10197534	A2	19980731	JP 1997-346351	19971216 <--
	BR 9705648	A	19990223	BR 1997-5648	19971216 <--
	US 6203706	B1	20010320	US 1997-991883	19971216 <--
	NO 9705937	A	19980619	NO 1997-5937	19971217 <--
	CN 1191312	A	19980826	CN 1997-125532	19971217 <--
	HK 1008244	A1	20011102	HK 1998-109323	19980721 <--
PRAI	EP 1996-120421	A	19961218 <--		

AB The invention concerns an agglutination test using immunoligands immobilized to colored synthetic **particles** of selected diam. and specific d. and an inert matrix for the detn. of analytes from a test soln. with the aid of gravity sepn. Diam. and d. of the synthetic

particles are chosen to mimic erythrocytes in the given matrix. The polymer **particles** are of 1-5 μm av. diam. and 1.1-1.8 g/cm^3 av. specific d.; e.g. polystyrene core **particles** were obtained by emulsion polymn. and turned to high-d. polymer by copolymn. with styrene/bromstyrene; the **particles** had an av. diam. of 3.1 μm and a specific d. fractions of 1.05, 1.18, 1.28 and 1.32 g/cm^3 . Ligands are immobilized by adsorptive, covalent or affinity bondings; they can be peptides, proteins, nucleic acids, saccharides, lipids, hormones, metabolites, cell **particles** or fragments. The analyte is either an antibody or an antigen and the assay is an immunoreaction or a nucleic acid hybridization reaction. The inert matrix **particles** are 10-200 μm , the reaction mixt. contains detergents and/or mucin and a redn. agent; centrifugation is applied in several steps. In the case of two analytes different types of **particles** are used. The invention also concerns a test kit consisting of microtubes attached to a holder sheet, the test tubes contain the inert matrix and the test kit also includes the synthetic **particles**. Thus polymer **particles** were colored using Sudan IV red and Ferro FW 1263 blue and functionalized either with glutaraldehyde, streptavidin or poly-L-lysine. Ligands were coupled to functionalized polymers, e.g. biotinylated antibodies to streptavidin functionalized polymer, double stranded DNA to poly-lysine **particles**. The gel matrix contains buffers, sodium azide, albumin, N-acetyl-L-cysteine, mucin and anti-human globulin. Chagas' disease antibody test was carried out by coupling the synthetic peptide antigens Ag-2, TcD and TcE to streptavidin functionalized **particles** using biotinylated lysine; the **particle** suspension was transferred into **micro** testtubes contg. the gel matrix; the test serum or plasma was added; after 10 min incubation at room temp. the tubes were centrifuged for 10 min at 80 g. Pos. reactions were displayed as bands 1-2 mm from the top of the vial, neg. results were the sediments on the bottom. The test kit was also used e.g. to det. visceral leishmaniasis antibodies using recombinant antigen rK39; performing hepatitis B surface antigen test by using monoclonal antibody MIH9701 to detect subtypes ad and ay; and for HIV-1/HIV-2 differentiation test using gp41 and gp36 peptides with red and blue polymers.

- ST agglutination test synthetic polymer particle immunoassay; HIV Chagas disease Leishmaniasis agglutination test; Hepatitis B non IgM immunoassay
- IT Proteins, specific or class
 - RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (A; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Trypanosoma cruzi
 - (Chagas' disease from; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Immunoglobulins
 - RL: ARU (Analytical role, unclassified); ANST (Analytical study) (G; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Immunoassay
 - (agglutination test; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT DNA
 - RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (double-stranded; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Polymerization
 - (emulsion; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Envelope proteins
 - RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (gp36env; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)

- IT Envelope proteins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(gp41env; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Antigens
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(hepatitis B surface; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Leishmania
(leishmaniasis from; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Antibodies
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(monoclonal; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Antibodies
RL: ANT (Analyte); ANST (Analytical study)
(non-IgM; use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Blood analysis
Blood plasma
Blood serum
Buffers
Cell
Centrifugation
Detergents
Human immunodeficiency virus 1
Human immunodeficiency virus 2
Immobilization, biochemical
Immunoassay
Nucleic acid hybridization
Test kits
Vials
(use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Antibodies
Antigens
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Carbohydrates, uses
Hormones, animal, uses
Lipids, uses
Nucleic acids
Peptides, uses
Proteins, general, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Albumins, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Mucins
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT Polymers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(use of synthetic particles with immobilized immunoligands as reagents in agglutination reactions)
- IT 58-85-5, Biotin 3118-97-6, Sudan red 9013-20-1, Streptavidin

25104-18-1, Poly-L-lysine 209679-77-6, Ferro Blue FW 1263
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
 (use of synthetic particles with immobilized immunoligands as reagents
 in agglutination reactions)

IT 616-91-1, N-Acetyl-L-cysteine 9003-53-6, Polystyrene
 9003-53-6D, Polystyrene, derivs. 26628-22-8, Sodium azide
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)
 (use of synthetic particles with immobilized immunoligands as reagents
 in agglutination reactions)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

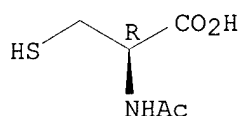
- (1) Bio Rad Laboratories; EP 0348174 A 1989
- (2) Chachowski, R; US 5552064 A 1996
- (3) Seikisui Chemical Co Ltd; EP 0158443 A 1985 HCAPLUS
- (4) Seitetsu Kagaku Co Ltd; EP 0279525 A 1988 HCAPLUS
- (5) Stanford, L; US 4021534 A 1977 HCAPLUS
- (6) Stiftung Fur Diagnostische For; EP 0305337 A 1989

IT 616-91-1, N-Acetyl-L-cysteine
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)
 (use of synthetic particles with immobilized immunoligands as reagents
 in agglutination reactions)

RN 616-91-1 HCAPLUS

CN L-Cysteine, N-acetyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L56 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN 1996:726595 HCAPLUS

DN 126:98613

TI Copper dispersed into polyaniline films as an amperometric sensor in
 alkaline solutions of amino acids and polyhydric compounds

AU Casella, Innocenzo G.; Cataldi, Tommaso R. I.; Guerrieri, Antonio;
 Desimoni, Elio

CS Dipartimento di Chimica, Universita degli Studi della Basilicata, Via N.
 Sauro 85, Potenza, 85100, Italy

SO Analytica Chimica Acta (1996), 335(3), 217-225
 CODEN: ACACAM; ISSN: 0003-2670

PB Elsevier

DT Journal

LA English

CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 33, 34

AB A chem. modified electrode composed of copper **microparticles**
 dispersed into a polyaniline (PANI) film was studied as an amperometric
 sensor of scantily electroactive compds. possessing -OH and -NH2 groups.
 Glassy carbon was used as an electrode material and modified firstly by a
 PANI film, then allowed to stand in contact with a soln. of copper ions,
 and finally, the electroredn. was done at -0.3V. The electrochem.
 behavior of the resulting modified electrode in alk. medium was examd. by
 cyclic voltammetry and flow-injection amperometry. Using some
 representative compds., the effect of copper loading and pH on the
 electrode response was studied. Const.-potential amperometric detection
 was applied in conjunction with anion-exchange chromatog. (AEC) sepns. of
 amino acids and carbohydrates. At an applied potential of 0.55 V vs.
 Ag/AgCl, the detection limits (S/N = 3) for all analytes studied ranged
 5-15pmol, and the linear dynamic range was three-four orders of magnitude

above the detection limits. The resulting modified electrode was found to retain 95% of its initial response in flowing streams for 3h of operating time.

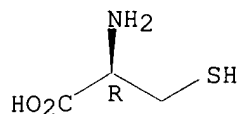
- ST copper dispersed polyaniline film amperometric sensor; amino acid detn polyaniline amperometric sensor; carbohydrate detn polyaniline amperometric sensor
- IT Anion exchange liquid chromatography
(amino acids and carbohydrates detn. in alk. solns. by anion-exchange chromatog. using amperometric sensor with copper **microparticles** dispersed in polyaniline film for detection)
- IT Alditols
RL: ANT (Analyte); ANST (Analytical study)
(amino acids and carbohydrates detn. in alk. solns. by anion-exchange chromatog. using amperometric sensor with copper **microparticles** dispersed in polyaniline film for detection)
- IT Flow injection analysis
(amino acids and carbohydrates detn. in alk. solns. by flow injection anal. using amperometric sensor with copper **microparticles** dispersed in polyaniline film)
- IT Amino acids, analysis
Carbohydrates, analysis
RL: ANT (Analyte); ANST (Analytical study)
(amino acids and carbohydrates detn. in alk. solns. by flow injection anal. using amperometric sensor with copper **microparticles** dispersed in polyaniline film)
- IT Sensors
(amperometric; amino acids and carbohydrates detn. in alk. solns. by amperometric sensor with copper **microparticles** dispersed in polyaniline film)
- IT Catalysts
(electrocatalysts; amino acids and carbohydrates detn. in alk. solns. by amperometric sensor with copper **microparticles** dispersed in polyaniline film)
- IT 7440-50-8, Copper, analysis
RL: ARU (Analytical role, unclassified); CAT (Catalyst use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(amino acids and carbohydrates detn. in alk. solns. by amperometric sensor with copper **microparticles** dispersed in polyaniline film)
- IT 25233-30-1, Polyaniline
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(amino acids and carbohydrates detn. in alk. solns. by amperometric sensor with copper **microparticles** dispersed in polyaniline film)
- IT 87-99-0, Xylitol
RL: ANT (Analyte); ANST (Analytical study)
(amino acids and carbohydrates detn. in alk. solns. by anion-exchange chromatog. using amperometric sensor with copper **microparticles** dispersed in polyaniline film for detection)
- IT 50-70-4, D-Glucitol, analysis 50-99-7, D-Glucose, analysis
52-90-4, Cysteine, analysis 56-40-6, Glycine, analysis
56-41-7, Alanine, analysis 56-45-1, L-Serine, analysis 56-81-5, 1,2,3-Propanetriol, analysis 56-85-9, Glutamine, analysis 56-87-1, Lysine, analysis 57-48-7, Fructose, analysis 57-50-1, Sucrose, analysis 63-42-3 63-68-3, Methionine, analysis 69-65-8, Mannitol 147-85-3, Proline, analysis 3416-24-8, Glucosamine
RL: ANT (Analyte); ANST (Analytical study)
(amino acids and carbohydrates detn. in alk. solns. by flow injection anal. using amperometric sensor with copper **microparticles** dispersed in polyaniline film)
- IT 52-90-4, Cysteine, analysis
RL: ANT (Analyte); ANST (Analytical study)

(amino acids and carbohydrates detn. in alk. solns. by flow injection anal. using amperometric sensor with copper **microparticles** dispersed in polyaniline film)

RN 52-90-4 HCAPLUS

CN L-Cysteine (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L56 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN 1992:486351 HCAPLUS

DN 117:86351

TI Isolation of biological materials using magnetic particles

IN Kausch, Albert P.; Narayanswami, Sandya; Manning, Jerry E.; Hamkalo, Barbara

PA DeKalb Plant Genetics, USA; University of California

SO PCT Int. Appl., 86 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N033-543

ICS B03C001-00; C12N015-10

CC 9-9 (Biochemical Methods)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9208133	A1	19920514	WO 1991-US8015	19911029 <--
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
	AU 9189511	A1	19920526	AU 1991-89511	19911029 <--
	JP 06510363	T2	19941117	JP 1991-500862	19911029 <--
	US 5508164	A	19960416	US 1993-146434	19931029 <--
	US 5665582	A	19970909	US 1994-229288	19940418 <--
PRAI	US 1990-605852		19901029 <--		
	WO 1991-US8015		19911029 <--		
	US 1993-146434		19931029 <--		

AB A method for the isolation and sorting of biol. materials has been developed. Biol. material includes chromosomes, segments of chromosomes, cell organelles, or other minute cellular components. The biol. material is sepd. from the cellular milieu, if necessary, and anchored to a support. Examples of a support are silanated supports such as glass coverslips, glass or polymer beads. The anchoring is by means of a reversible crosslinking system. The supported biol. material is then labeled with compns. capable of binding to said material, and with magnetic particles. Examples of the binding material include nucleic acid probes and antibodies. An example of the antibodies would be those directed to histones. Other labels, for example fluorescein-biotin-avidin, may be used. The material may be released from the support and sorted by a magnetic force. This method is an alternative to flow cytometry and presents numerous advantages in terms of time, resolu., purity, and preservation of the structure of the biol. material during isolation and sepn. App. schematics are presented.

ST magnetic particle organelle sepn; chromosome sepn magnetic particle

IT Polymers, uses

RL: USES (Uses)

(biol. material reversibly immobilized on, for isolation and sorting with magnetic particles)

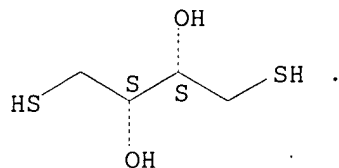
- IT Apparatus
(for isolation and sorting of biol. materials with magnetic particles)
- IT Columns and Towers
(in app. for isolation and sorting of biol. materials with magnetic particles)
- IT Nucleic acid hybridization
(in isolation and sorting of biol. material with magnetic particles)
- IT Antibodies
RL: ANST (Analytical study)
(in isolation and sorting of proteins with magnetic particles)
- IT Biological materials
Chloroplast
Chromosome
Organelle
Proteins, biological studies
RL: BIOL (Biological study)
(isolation and sorting of, magnetic particles in)
- IT Glass, oxide
RL: ANST (Analytical study)
(beads, porous, biol. material reversibly immobilized on, for isolation and sorting with magnetic particles)
- IT Chromosome
(centromere, nucleic acid probes binding to, in chromosome isolation and sorting with magnetic particles)
- IT Laboratory ware
(coverslips, biol. material reversibly immobilized on, for isolation and sorting with magnetic particles)
- IT Chromosome
(human 1, sepn. of, from mouse chromosomes, with magnetic particles and hybridization)
- IT **Particles**
(magnetic, in isolation and sorting of biol. material)
- IT Peptides, uses
RL: USES (Uses)
(oligo-, polymer beads treated with, in biol. material isolation and sorting with magnetic particles)
- IT Deoxyribonucleic acids
RL: ANST (Analytical study)
(satellite, III, nucleic acid probes for, in human chromosome 1 isolation from mouse chromosomes with magnetic particles)
- IT **3483-12-3, Dithiothreitol**
RL: **ANST (Analytical study)**
(as releasing agent, in isolation and sorting of biol. material with magnetic particles)
- IT 68181-17-9, SPDP
RL: ANST (Analytical study)
(as reversible crosslinker, in isolation and sorting of biol. material with magnetic particles)
- IT 1309-37-1, Ferric oxide, biological studies 7440-57-5, Gold, biological studies
RL: BIOL (Biological study)
(particles, in isolation and sorting of biol. materials)
- IT 1760-24-3
RL: ANST (Analytical study)
(support treated with, in isolation and sorting of biol. material with magnetic particles)
- IT 7803-62-5, Silane, properties
RL: PRP (Properties)
(support treated with, in isolation and sorting of biol. material with magnetic particles)
- IT **3483-12-3, Dithiothreitol**
RL: **ANST (Analytical study)**
(as releasing agent, in isolation and sorting of biol. material with

magnetic particles)

RN 3483-12-3 HCAPLUS

CN 2,3-Butanediol, 1,4-dimercapto-, (2R,3R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L56 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2003 ACS

AN 1984:179394 HCAPLUS

DN 100:179394

TI Microtitrimetric determination of inorganic and organic sulfur in airborne dust

AU Moehnle, K.; Krivan, V.; Grallath, E.

CS Sekt. Anal. Hoechstreinigung, Univ. Ulm, Ulm, D-7900, Fed. Rep. Ger.

SO Fresenius' Zeitschrift fuer Analytische Chemie (1984), 317(3-4), 300-3

CODEN: ZACFAU; ISSN: 0016-1152

DT Journal

LA German

CC 59-1 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 79

AB In a modified reductive procedure for application to airborne dust, S compds. are reduced to H₂S by a mixt. of HI, HCOOH, H₃PO₄, and SbO₃, transferred into a NaOH sol., and total S is detd. by microtitration with Cd(II) using dithizone [60-10-6] as indicator. Inorg. forms of S are easily and quant. reduced but org. species remain in the flask and total S is detd. after oxidative decompn. of the org. compds. Anal. of airborne particles from different sources were in good agreement with instrumental anal.

ST sulfur detn airborne particle titrn; redn titrn sulfur compd dust

IT Air analysis

(sulfur detn. in airborne particles in, microtitrn. procedure for)

IT **Particles**

(airborne, sulfur detn. in, microtitrn. procedure for)

IT 52-90-4, analysis 59-51-8 60-10-6 62-56-6, analysis
121-57-3 132-65-0 147-93-3

RL: ANT (Analyte); ANST (Analytical study)

(detn. of, in airborne particulates, oxidn. decompn. and titrn. procedure for)

IT 7664-93-9, analysis 7704-34-9D, inorg. compds.

RL: ANT (Analyte); ANST (Analytical study)

(detn. of, in airborne particulates, redn. and titrn. procedure for)

IT 52-90-4, analysis 147-93-3

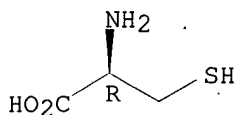
RL: ANT (Analyte); ANST (Analytical study)

(detn. of, in airborne particulates, oxidn. decompn. and titrn. procedure for)

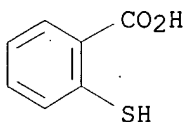
RN 52-90-4 HCAPLUS

CN L-Cysteine (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 147-93-3 HCAPLUS
 CN Benzoic acid, 2-mercapto- (9CI) (CA INDEX NAME)



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FILE LAST UPDATED: 19 JUN 2003 <20030619/UP>
 MOST RECENT DERWENT UPDATE: 200339 <200339/DW>
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 /BIX is also provided which comprises both /BI and /ABEX <<<

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http://www.derwent.com/userguides/dwpi_guide.html <<<

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L66 ANSWER 1 OF 4 WPIX (C) 2003 THOMSON DERWENT
 AN 2000-431123 [37] WPIX
 DNN N2000-321758 DNC C2000-130959
 TI Preparing nanoparticles with attached polymer shells, used to detect or
 quantify analytes e.g. nucleic acids, by providing nanoparticles and
 attaching initiation monomers to nanoparticle surfaces.
 DC A96 B04 D16 E11 E12 P73 S03
 IN MIRKIN, C A; NGUYEN, S T
 PA (NANO-N) NANOSPHERE LLC; (NANO-N) NANOSPHERE INC
 CYC 88
 PI WO 2000033079 A1 20000608 (200037)* EN 65p G01N033-553
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
 OA PT SD SE SL SZ TZ UG ZW
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB
 GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU

LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR
 TT UA UG US UZ VN YU ZA ZW
 AU 2000019286 A 20000619 (200044) G01N033-553
 EP 1135682 A1 20010926 (200157) EN G01N033-553
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
 RO SE SI
 CN 1328641 A 20011226 (200227) G01N033-553
 JP 2002531830 W 20020924 (200278) 85p G01N033-553
 ADT WO 2000033079 A1 WO 1999-US28387 19991130; AU 2000019286 A AU 2000-19286
 19991130; EP 1135682 A1 EP 1999-962951 19991130, WO 1999-US28387 19991130;
 CN 1328641 A CN 1999-813888 19991130; JP 2002531830 W WO 1999-US28387
 19991130, JP 2000-585664 19991130
 FDT AU 2000019286 A Based on WO 200033079; EP 1135682 A1 Based on WO
 200033079; JP 2002531830 W Based on WO 200033079
 PRAI US 1998-110327P 19981130
 IC ICM G01N033-553
 ICS B32B005-16; C08G061-06; G01N033-545
 AB WO 200033079 A UPAB: 20000807
 NOVELTY - Preparing nanoparticles with at least one polymer shell attached
 by providing a type of nanoparticles, and attaching a type of initiation
 monomers to the surfaces of the nanoparticles, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the
 following:

- (1) nanoparticles to which initiation monomers are attached;
- (2) nanoparticle comprising one or more polymer shells attached to
 them, the shells are formed by polymerization of one or more types of
 propagation monomers of formula (I): P-L-N (I);
- (3) propagation monomers of formula (I);
- (4) initiation monomers of formula (II): N-L-A (II);
- (5) detecting or quantitating analyte, comprising contacting a sample
 suspected of containing an analyte which binds to a binding moiety in a
 polymer shell, with the nanoparticles comprising the moiety in a polymer
 shell, and detecting or measuring the properties of the nanoparticle to
 detect or quantify the analyte;
- (6) a kit for detecting or quantitating analyte, containing
 nanoparticles comprising a binding moiety specific for an analyte in a
 polymer shell;
- (7) binding monomers of formula (III): N-L-B (III);
- (8) a polymer formed by polymerizing one or more (I);
- (9) detecting or quantitating an analyte, comprising contacting a
 sample with the polymer of (8), and detecting or measuring the properties
 of the polymer to detect or quantitate the analyte;
- (10) detecting or quantitating an analyte, comprising contacting the
 analyte with (III), adding (I), so that the propagation monomers
 polymerize to a form a polymer attached to the analyte, and detecting or
 measuring the properties of the polymer attached to the analyte in order
 to detect or quantitate the analyte; and
- (11) a kit for detecting or quantitating an analyte, comprising (III)
 and/or (I).

N = cyclic olefin-containing group;

P = group that gives each polymer shell a selected property or
 properties;

L = bond or linker;

A = attachment compound-containing group comprising a functional
 group suitable for attaching the initiation monomer to a nanoparticles;

B = binding group that binds specifically to an analyte.

USE - The processes are used to prepare nanoparticles with attached
 polymer shells (claimed) including nanoparticles of metal (gold, silver,
 copper, platinum), semiconductor (silicon, cadmium selenide, cadmium
 sulfide or cadmium sulfide protected with zinc sulfide), polymer
 (polystyrene, polymethylmethacrylate), magnetic (ferromagnetite),
 insulator (silicon dioxide), or superconductor (YBa₂Cu₃O_{7-d}) colloidal
 materials as well as zinc selenide, zinc sulfide, zinc oxide, titanium

dioxide, silver iodide, silver bromide, mercury iodide, lead sulfide, lead selenide, lead telluride, zinc telluride, silicon dioxide, cadmium telluride, indium sulfide, indium selenide, indium telluride, cadmium phosphide, cadmium arsenide, indium arsenide, indium phosphide, gallium phosphide and gallium arsenide. The nanoparticles produced may be used to detect or quantify analytes e.g. nucleic acids, antigens or haptens (claimed) as well as polysaccharides, lipids, lipopolysaccharides, proteins, glycoproteins, lipoproteins, nucleoproteins, peptides, oligonucleotides, specifically antibodies, immunoglobulins, albumin, hemoglobin, coagulation factors, peptide and protein hormones (insulin, gonadotropin, somatotropins), non-peptide hormones, interleukins, interferons and other cytokines, peptides comprising a tumor-specific epitope, cells (red blood cells), cell-surface molecules (CD antigens, integrins, cell receptors), microorganisms (viruses, bacteria, parasites, molds, fungi) and their fragments, components or products, small organic molecules (digoxin, heroin, cocaine, morphine, mescaline, lysergic acid, tetrahydrocannabinol, cannabinal, steroids, pentamidine, biotin), genes, viral RNA or DNA, bacterial DNA, fungal DNA, mammalian DNA, cDNA, mRNA, RNA and DNA fragments, oligonucleotides, synthetic oligonucleotides, modified oligonucleotides, single- and double-stranded nucleic acids, and natural and synthetic nucleic acids in biological fluids (serum, plasma, blood, saliva, urine), cells, cell lysates, tissues, compound libraries (organic chemicals or peptides) and solutions containing polymerase chain reaction components. The nanoparticles produced can also be used as versatile building blocks for easy incorporation into existing particle assembly strategies.

ADVANTAGE - The processes produce nanoparticles with selected redox, optical, electronic or magnetic activity. The processes are 'living' polymerizations such that they provide exceptional control over polymer length and chemical composition, and particle size, shape and solubility.
Dwg.0/8

FS CPI EPI GMPI

FA AB; GI; DCN

MC CPI: A10-D03; A11-B05C; A12-V03C2; A12-W11L; B01-D02; B04-A03; B04-A04; B04-B03; B04-C01; B04-C02; B04-C03; B04-E01; B04-F10; B04-G01; B04-H01; B04-J03A; B04-N04; **B05-A03**; B06-A03; B06-F03; B10-A17; B10-B04B; B10-E03; B11-C01; B11-C07A2; B11-C07A5; **B11-C07B**; B12-K04; D05-H09; E05-E; E05-G03B; E05-L02A; E05-M; E05-N; **E10-E03**; E11-Q03; E31-G; E31-K07; E31-P01; E31-P03; E31-P06; E35
EPI: S03-E14H4

TECH UPTX: 20000807

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred method: The initiation monomer comprises a cyclic olefin-containing group, preferably a norbornenyl group. The nanoparticles are gold particles and the initiation monomer is a norbornenyl-containing alkanethiol, preferably 1-mercapto-10-(exo-5-norbornen-2-oxy)-decane. The initiation monomers are mixed with a type of attachment compounds and both the initiation monomers and attachment compounds are attached to the surfaces of the nanoparticles. The method further comprises contacting the nanoparticles with attached initiation monomers with a transition metal ring-opening metathesis catalyst to activate the initiation monomers, and contacting the nanoparticles with one or more types of propagation monomers of formula (I) under conditions effective to polymerize the propagation monomers to form one or more polymer shells attached to the nanoparticles. The catalyst is of formula (IV), (V) or (VI).

M = osmium or ruthenium;

R1 = H;

X1, X2 = any anionic ligand e.g. Cl;

L1, L2 = any neutral electron donor e.g. tricyclohexylphosphine; and

R2 = H, optionally substituted alkyl or optionally substituted aryl
(Re(CR1)(CHR2)(R3)(R4))_n

Re = rhenium (VII);

R1 = 1-20C alkyl, 6-20C aryl, 7-30C aralkyl, their halo-substituted derivatives or their silicon-containing analogs;
 R2 = 1-20C alkyl, 6-20C aryl, 7-30C aralkyl, their halo-substituted derivatives, their silicon-containing analogs or a substituent resulting from the reaction of the Re=CHR2 group with an olefin that is being metathesized;
 R4, R4' = ligands that, alone or together, are sufficiently electron withdrawing to render the rhenium atom electrophilic enough for metathesis reaction; and
 n = 1 or greater.
 M(NR1)(OR2)2(CHR3)
 M = Mo or W;
 R1, and R2 = 1-20C alkyl, 6-20C aryl, 7-30C aralkyl, their halo-substituted derivatives or their silicon-containing analogs; and
 R3 = 1-20C alkyl, 6-20C aryl, 7-20C aralkyl, or a substituent resulting from the reaction of the M=CHR3 group with an olefin that is being metathesized.

The nanoparticles are contacted with a single type of propagation monomer, so that the monomers are polymerized to form a single polymer shell attached to the nanoparticles. The polymer shell has redox activity. The propagation monomer is exo-5-norbornen-2-yl ferrocene carboxylate or 5-exo-norbornen-2-yl ferrocene acetate. The nanoparticles are contacted with a number of types of propagation monomer so that the monomers are polymerized to form one or more polymer shells attached to the nanoparticles, each polymer shell having one or more selected properties. The nanoparticles are contacted with a first type of propagation monomer, so that the monomers are polymerized to form a first polymer shell attached to the nanoparticles, with a first selected property, and then with a second type of propagation monomer so that the monomers are polymerized to form a second polymer shell attached to the first polymer shell, with a second selected property different from the property of the first shell. One of the shells has redox activity, and is formed by polymerization of exo-5-norbornen-2-yl ferrocene carboxylate or 5-exo-norbornen-2-yl ferrocene acetate. Alternatively, both polymer shells have redox activity, preferably each has a different activity. The propagation monomer polymerized to form the first shell is exo-5-norbornen-2-yl ferrocene carboxylate, and the monomer polymerized to form the second shell is 5-exo-norbornen-2-yl ferrocene acetate. The polymer shell may comprise a binding moiety specific for an analyte, formed by polymerizing a mixture of (I) and (III). In the detection methods, the property detected is fluorescence, color, or redox activity. Preferred Analyte: The analyte is an antigen or hapten, and the binding moiety is an antibody.

ABEX

UPTX: 20000807

EXAMPLE - 1-mercapto-10-(exo-5-norbornen-2-oxy)-decane was immobilized on 3-nm gold nanoparticles using a modified method of Schiffrin Brust et al. J Chem Soc Chem Commun 1994; 801 by reducing H₂AuCl₄ (2.24 mmol) in the presence of a 3:1 mixture of 1-dodecanethiol (1.68 mmol) and 1-mercapto-10-(exo-5-norbornen-2-oxy)-decane (0.56 mmol) to give gold nanoparticles modified with the two adsorbates. The dodecanethiol diluent molecule was used to minimize surface crosslinking of norbornenyl groups and propagating polymer. The gold nanoparticles were precipitated from dichloromethane by the addition of ethanol and re-dispersed in various organic solvents such as hexanes, ether and dichloromethane. The ¹H-nuclear magnetic resonance (NMR) spectrum of the modified particles in CDCl₃ confirmed that the norbornene adsorbates were indeed attached to their surfaces. Two resonances at about delta 5.9 and 6.2 were highly diagnostic of the two norbornenyl olefinic protons and compared well with those observed in the ¹H-NMR spectrum of 1-mercapto-10-(exo-5-norbornen-2-oxy)-decane. The ultraviolet-visible spectrum of the particles in hexanes exhibited a weak plasmon band at 518 nm, characteristic of gold nanoparticles of this size.

DEFINITIONS - Preferred Definitions:

N = norbornenyl-containing group;

L = polymer, COO, CH₂(CH₂)_mCOO, OCO, R₁N(CH₂)_mNR₁, O(CH₂)_m, (CH₂)_m, N(R₁)C(O)(CH₂)_m, O(CH₂)_m, OC(O)(CH₂)_mC(O)O, C(O)O(CH₂)_mOC(O)O, R₁N(CH₂)_m, R₁NC(O)(CH₂)_mC(O)N, C(O)N(R₁)(CH₂)_mN(R₁)C(O), C(O)N(R₁)(CH₂)_m or a binding group that binds specifically to an analyte;R₁ = X(CH₂)_m;X = CH₃, CHCH₃, COOH, CO₂(CH₂)_mCH₃, OH, CH₂OH, ethylene glycol, hexa(ethylene glycol), O(CH₂)_mCH₃, NH₂, NH(CH₂)_mNH₂, halo, glucose, maltose, fullerene C₆₀, cyclic olefin or nucleic acid;

m = 0-30;

cyclic olefin = 1-3 ring-containing compound, each ring containing 3 or more (5-8) C atoms and further containing at least one C=C bond.

L66 ANSWER 2 OF 4 WPIX (C) 2003 THOMSON DERWENT

AN 2000-271558 [23] WPIX

DNN N2000-203299 DNC C2000-083022

TI Detecting thiol-containing compounds using thin film comprising hydrophilic binder and e.g. fine particles of metal for diagnosing diseases.

DC B04 E19 J04 S03

IN NEMORI, R; NISHIGAKI, J; TAMURA, Y

PA (FUJF) FUJI PHOTO FILM CO LTD

CYC 88

PI WO 2000016094 A1 20000323 (200023)* JA 25p G01N031-00

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
OA PT SD SE SL SZ UG ZWW: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES
FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KR KZ LC LK LR LS LT
LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM
TR TT UA UG US UZ VN YU ZA ZW

AU 9956494 A 20000403 (200034) G01N031-00

EP 1120648 A1 20010801 (200144) EN G01N031-00

R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

JP 2000570580 X 20011204 (200212) G01N031-00

ADT WO 2000016094 A1 **WO 1999-JP4933 19990910**; AU 9956494 A AU
1999-56494 19990910; EP 1120648 A1 EP 1999-943265 19990910, **WO**
1999-JP4933 19990910; JP 2000570580 X **WO 1999-JP4933 19990910**
, JP 2000-570580 19990910FDT AU 9956494 A Based on WO 200016094; EP 1120648 A1 Based on WO 200016094;
JP 2000570580 X Based on WO 200016094

PRAI JP 1998-256839 19980910

IC ICM G01N031-00

ICS G01N021-75; **G01N033-52**; G01N033-68

AB WO 200016094 A UPAB: 20000516

NOVELTY - Detecting thiol-containing compounds (TCC) comprises:

(i) contacting a sample containing a TTC with a thin film comprising a hydrophilic binder and fine particles of a metal or a metal compound; and

(ii) detecting the color change of the film caused by interaction between the TCC and the fine particles.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a thin film as in (i) for use in detecting TCC.

USE - For detecting thiol-containing compounds such as alkylmercaptans, arylmercaptans, amino acids, peptides or proteins e.g. for detecting or monitoring treatment of diseases or disorders (preferably for detecting fragments of cancer tissue in human mammary biopsies).

ADVANTAGE - Method is simple, rapid and can be used for a wide range of thiol containing samples.

Dwg.0/0

FS CPI EPI

FA AB; DCN

MC CPI: **B05-A03B**; **B11-C07B1**; B12-K04A1; E10-B02;

E10-E03; E11-Q03L; J04-C03

EPI: S03-E04E; S03-E09E; S03-E14H6; S03-E14H9

TECH UPTX: 20000516

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Metal: Metal is from the 2-6 group of the periodic table (preferably VIb, VIIb, VIII, Ib, IIb, VIa or VIIb and is especially gold, silver, copper or platinum). Film may also comprise a bridging agent.

ABEX UPTX: 20000516

EXAMPLE - Film for detecting thiol-containing compounds comprised PET film comprising colloidal silver (0.01 mm average particle size; 0.37 g/m²), a layer of acid treated pig skin gelatin (7.0 μm) and 1,2-bis(vinylsulfonylacetamido)ethane (2.40 g/m²).

L66 ANSWER 3 OF 4 WPIX (C) 2003 THOMSON DERWENT

AN 1993-349181 [44] WPIX

DNN N1993-269231 DNC C1993-155188

TI Determn. of mercaptan content in petroleum fuels - by passing sample through layer of zeolite modified with silver ions and measuring height of formed coloured zone.

DC E19 H06 J04 S03

IN TER-OGANESYAN, G SH; ZRELOV, V N; ZRELOVA, L V

PA (CHEM-R) CHEMMOTOLOGY RES INST

CYC 1

PI SU 1769124 A1 19921015 (199344)* 5p G01N030-00

ADT SU 1769124 A1 SU 1990-4843954 19900628

PRAI SU 1990-4843954 19900628

IC ICM G01N030-00

AB SU 1769124 A UPAB: 19931213

The method is based on passing of sample through glass column, contg. layer of zeolite, modified with silver ions to the degree of ion exchange 15-60% and having particle size 0.05-0.15 mm, and calculating mercaptans content on basis of the length of coloured zone.

Zeolite NaX or NaY is milled to required particle size, treated with 0.5% soln. of silver nitrate at 25 deg.C for 60 min. and dried at temp. up to 35 deg.C. Modified zeolite is mixed with glass powder of same granule size and packed into chromatographic column of dia. 2.3 mm, to the height of layer 45+/-5 mm. Analysed prod. is passed through column at rate up to 0.5 cc/min. Adsorbed mercaptans change the colour of modified zeolite to black. The content of mercaptans in sample is found from expression: $C = (a \times h \times 100) / (V \times d)$, where C is mercaptans content, a is the calibration coefft., h is the length of coloured mercaptans adsorption zone, V is the vol. of analysed sample and d is density of prod. Calibration coefft. a is determined from the ratio of adsorbed mercaptans to length of coloured zone, for each newly prepd. modified zeolite.

Tests show that proposed method increases selectivity of analysis by 3-4.5 times, and reduces time of analysis to 10-20 min. compared to 120-140 min. in prototype. Accuracy is increased by 2.2-26 times.

USE/ADVANTAGE - Used in determn. of mercaptans content in oil fuels, in oil and oil processing ind. The method increases accuracy and sensitivity of analysis and reduces time. Bul.38/15.10.92

Dwg.0/0

FS CPI EPI

FA AB; DCN

MC CPI: **E10-E03; E11-Q03L; H06-B; J04-C03**

EPI: S03-E09C; S03-E14E1

L66 ANSWER 4 OF 4 WPIX (C) 2003 THOMSON DERWENT

AN 1988-228747 [33] WPIX

DNN N1988-174023 DNC C1988-102187

TI Test reagent for thiol gps. contg. ferric ions and complex ligand - forming coloured, pref. red or blue complex with ferrous ions.

DC B04 D14 E19 J04 S03

IN HEIDENREICH, H; HUGL, H; WEHLING, K; HEIDENREIC, H

PA (FARB) BAYER CORP; (MILE) MILES INC
CYC 5
PI DE 3703081 A 19880811 (198833)* 6p
GB 2200989 A 19880817 (198833)
FR 2610409 A 19880805 (198838)
JP 63247656 A 19881014 (198847)
GB 2200989 B 19910522 (199121)
JP 06035966 B2 19940511 (199417) 6p G01N031-00
CA 1339797 C 19980407 (199825) C12Q001-32
ADT DE 3703081 A DE 1987-3703081 19870203; GB 2200989 A GB 1988-1876 19880128;
FR 2610409 A FR 1988-862 19880126; JP 63247656 A JP 1988-21427 19880202;
JP 06035966 B2 JP 1988-21427 19880202; CA 1339797 C CA 1988-556460
19880113
FDT JP 06035966 B2 Based on JP 63247656
PRAI DE 1987-3703081 19870203
IC C12Q001-34; C12Q001-44; G01N031-22; **G01N033-52**; G01N033-68
ICM C12Q001-32; G01N031-00
ICS C12Q001-34; C12Q001-44; G01N031-22; **G01N033-52**; G01N033-68
AB DE 3703081 A UPAB: 19930923
Test reagent (I) for thiol gps. contains Fe (3+) ions, which can be reduced to Fe (2+) ions by the thiol gps., and a complex ligand, which can form a coloured complex with the Fe (2+) ions formed. The ligand can be ferroins, cuproins or terrains, esp. hydrazones, tetrazolylpyridines, pyridylquinazolines, bis-isoquinolines, imines, phenanthrolines, bipyridines, terpyridines, bidiazines, pyridyldiazines, pyridylbenzimidazoles, diazyltriazines, o-nitroanilines, phenols, tetrazines, quinoxalines, benzimidazoles or oximes of substd. methyl or phenyl 2-pyridyl ketones. The ligand may also contain a hydrophobic gp.
USE/ADVANTAGE - (I) is claimed for detecting thiols of the lipoamide, thiocholine, glutathione and thioglycoside types and thiol precursors in the form of a thioester, thioether, disulphide or thioacetal; enzymes which degrade thio cpds., esp. esterases, thioglycosidases or thioesterases; reduced lipoamide; reduced pyridine nucleotides, using lipoamide and lipoamide dehydrogenase; enzymes forming free thiol gps. directly or indirectly by enzymatic reactions; and substrates which react to form free thiol gps. directly or indirectly. (I) gives a red or blue colour directly (in contrast to the initial yellow colour with Ellmans reagent). It is suitable for qualitative and (semi)quantitative test of substrate solns., enzyme solns., blood, serum, plasma or urine, using a photometer for kinetic or end point measurement and for test paper etc. for rapid diagnosis or test of foodstuffs, e.g. fruit juice or milk.
0/0
FS CPI EPI
FA AB; DCN
MC CPI: B04-A07E; B04-B01B; B04-B02C; B04-B04B; B04-B04D4; **B05-A03A**
; B06-H; B07-H; B10-A04; B10-A19; B10-A20; B10-A23; B10-E02; B10-G01;
B10-H01; **B11-C07B1**; B12-K04E; D03-K03; D05-H09; E05-L02A;
E05-L03B; E06-H; E07-H; E10-A18; E10-A19; E10-A20; E10-E02F;
E10-E03; J04-B01B
EPI: S03-E09E
ABEQ GB 2200989 B UPAB: 19930923
A method for detecting reduced nicotinamide adenine dinucleotide in a fluid sample, which method comprises: combining a fluid sample with FeCl3, lipoamide, lipoamide dehydrogenase, a buffer and a complex ligand which is capable of forming a coloured complex with the Fe2+ ions formed; and detecting the colour change which occurs.

=> d his

(FILE 'HOME' ENTERED AT 17:23:49 ON 23 JUN 2003)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 17:24:01 ON 23 JUN 2003

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      E WO99-JP4933/AP, PRN
L1      1 S E3, E4
      E NEMORI R/AU
L2      50 S E3-E5
      E NISHIGAKI J/AU
L3      73 S E3, E7
      E TAMURA Y/AU
L4      208 S E3
L5      212 S E127
      E FUJI/PA, CS
L6      35201 S (FUJI (L) PHOTO?) /PA, CS
L7      1 S (FUJIPHOTO?) /PA, CS
L8      57330 S FUJI/PA, CS
      E THIOL/CT
      E E40+ALL
L9      13975 S E1
      E E2+ALL
L10     5513 S E2
L11     122618 S E2+NT
      E E95+ALL
L12     1125 S E4, E3+NT
      E E7+ALL
L13     17221 S E3-E5, E2+NT
L14     145251 S L9-L13
L15     783 S L14 AND (?MICROPARTICL? OR ?NANOPARTICL? OR MINIPARTICL? OR P
      E MICROPARTICLE/CT
      E E4+ALL
L16     2660 S E3, E2+NT
      E E1+ALL
L17     46468 S E1
      E E401+ALL
L18     48918 S E3
L19     424 S L14 AND L16-L18
L20     1082 S L15, L19
L21     286 S L20 AND ?METAL?
      E METAL/CT
      E METALS/CT
L22     52 S E3 AND L20
L23     286 S L21, L22
L24     8 S L23 AND BINDER
L25     12 S L23 AND (?CROSSLINK? OR ?CROSS LINK?)
L26     88 S L23 AND (MEMBRANE OR FILM?)
L27     54 S L23 AND (BIOCHEM? (L) METHOD?) /SC, SX
L28     24 S L27 AND L24-L26
L29     18 S L23 AND COLOR?
      E COLOR/CT
      E E3+ALL
L30     1 S L23 AND E4, E5, E3+NT
      E E10+ALL
L31     1 S L23 AND E3, E2+NT
      E E2+ALL
L32     18 S L29-L31
L33     8221 S L14 (L) (ANT OR ANST) /RL
L34     21 S L33 AND L23
L35     14 S L34 AND L24-L32
L36     126440 S L14 AND (PD<=19990910 OR PRD<=19990910 OR AD<=19990910)
L37     6756 S L36 AND L33
L38     32 S L37 AND L20
L39     480 S L37 AND ?METAL?
L40     11 S L39 AND L38
L41     18 S L35, L40
L42     24 S L34, L38 NOT L41

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L43 SEL DN AN 7 10 12 18 22
5 S L42 AND E1-E15
SEL DN AN L41 4 5 7 9 10 12 14
L44 7 S E16-E36
L45 12 S L43,L44 AND L1-L44
L46 13 S L2-L5 AND L14
L47 347 S L6,L7 AND L14
L48 2 S L46 AND L20
L49 2 S L46 AND ?METAL?
L50 2 S L48,L49
L51 12 S L45,L50
L52 11 S L46 NOT L51
L53 6 S L47 AND L20
L54 68 S L47 AND ?METAL?
L55 5 S L53 AND L54
L56 15 S L51,L55

FILE 'HCAPLUS' ENTERED AT 18:11:52 ON 23 JUN 2003

FILE 'WPIX' ENTERED AT 18:13:24 ON 23 JUN 2003

E WO99-JP4933/AP,PRN

L57 1 S E3
L58 3929 S E10-E03?/MC
L59 46 S L58 AND (B05-A? OR C05-A?)/MC
L60 88 S L58 AND (E35-A OR E35-B OR E35-X)/MC
L61 327 S L58 AND (A547 OR A679 OR A678 OR A429)/M0,M1,M2,M3,M4,M5,M6
L62 388 S L59-L61
L63 3 S L62 AND (G01N033-52/IC,ICM,ICS,ICA,ICI OR E11-Q03L/MC)
L64 3 S L62 AND (B11-C07B OR C11-C07B OR B11-C07B1 OR C11-C07B1 OR B1
L65 4 S L63,L64
L66 4 S L57,L65

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